ITEM: 24

Staff Report

AMES PLAN 2040 PUBLIC COMMENT

October 12, 2021

BACKGROUND:

On August 24th, City Council directed staff to finalize the public draft of Ames Plan 2040 and seek public feedback during the month of September. The Plan was made available online at www.cityofames.org/amesplan2040 and promoted through social media channels, press releases, city newsletter, and email notification to the interested parties list of approximately 335 emails addresses. Staff held on online overview presentation via ZOOM and an in person drop-in open house at the Library. Approximately 30 individual correspondences were received. All comments received through October 5th are attached to this report as Attachment A. In addition to public comments, the Planning and Zoning Commission discussed the Plan at their September 15th meeting and a summary of their discussion is included as Attachment B.

Ames Plan 2040 is designed around the City Council's evaluation of growth scenarios that addressed housing, commercial, and employment growth related to a population increase of 15,000 people over the next 20 years. The Plan includes Vision Statements concerning Growth; Land Use; Environment; Open Space; Transportation; Neighborhoods, Housing, and Sub Areas; and Community Character to address not only the planned growth but also continued investment for the existing areas of the City. The Plan intentionally includes policies that tie land use, transportation, and environmental issues together to address common interests related to the design of the community and appropriate uses throughout the community.

While the Plan includes defined growth areas for the expansion of the City, it also includes a policy framework for infill options and redevelopment areas. Not all the growth will occur at the periphery of the City; targeted areas will be intensified to provide for additional housing and economic development options over the life of the Plan. Overall, the Plan is structured as a values-based plan with policies and objectives that provide for a great amount of latitude in its implementation, both through updates to City development standards as well as future land use and zoning changes.

FEEDBACK:

Staff received a mix of feedback ranging from detailed multi-issue responses to comments that are specific to one area or policy. We received positive comments about the Plan vision and policies as well as comments concerned about the vision for growth and the perceived limited commitment of the policies to the vision of the plan. Notably, the introductory vision statement was not directly questioned, but the policies for implementing the plan as they related to the introductory vision were a subject of comments.

Some of the issues that came up more than once included:

- Property owners in the southwest area south of Highway 30 concerned about how the area is represented in the Fringe Map as Urban Reserve.
- Statements concerning the need to conserve natural resource areas and the labeling/mapping of these designations.
- The amount of projected growth, patterns of growth
- Balance of housing types, areas for future multi-family
- Infill housing and compatibility policies, applicability of the compatibility matrix
- Relationship of the Plan to the Climate Action Plan

With City Council's receipt of the comments, staff is asking for direction on any specific policy adjustments or clarifications that should be considered at this time. Note that Staff will be incorporating edits to the draft plan related to known typographical errors, formatting, and adjustments for clarity back to RDG as well.

Map specific comments were also provided to staff at the open house and per some individual correspondences. (Attachment C) Staff intends to bring proposed map changes (staff initiated changes based upon further assessment of the Plan and comments from the public) to the City Council on October 26th.

STAFF COMMENTS:

To move forward with completing this Plan there are a few important components left to complete.

1. Changes to the Plan text based upon public comments.
2. Changes to the Maps based upon public comments and staff edits.
3. Implementation Chapter

The final chapter to be added to the Plan is for Implementation. Many of the policies and actions in the Plan are designed to guide future decisions, but in and of themselves they do not directly cause change or improvements. Implementation chapters can catalogue each policy and action and provide a matrix for implementation or applicability over the life of the Plan. Another option is for the Chapter to focus on the priority implementation projects.

Staff believes that with the style of Ames Plan 2040 it would be beneficial to use the priority project approach. Staff anticipates identifying 10-15 priorities related to implementing the Visions of the Plan Elements. This will include topics ranging from capital improvement planning to selective ordinance updates to zoning and the subdivision codes. Additional Plan updates for City Departments, and sub-area plans will also be needed to guide more specific decision making as described in the Plan. Staff will provide suggested priorities at the October 26th meeting. RDG will then incorporate all of the changes suggested from October 12th and 26th into the final draft to proceed with public hearings on the final draft in November.

From: Kurt Friedrich
To: Sahlstrom, Eloise
Cc: Diekmann, Kelly
Subject: Re: Feedback Sought on Draft Ames Plan 2040
Date: Tuesday, September 7, 2021 7:03:34 PM

[External Email]

Hi Kelly and Eloise;

Just starting to review the map…noticed that there must be a major oversight in the omission of the Dankbar/Muench properties not being included in the Draft LUPP Map?! These properties have been included in the plan under the Urban Services designation since late 2017. Please advise and amend to include these properties.

Kurt W. Friedrich
President, R. Friedrich & Sons, Inc.
100 6th Street, Ames, IA 50010
(O) 515-232-6175; (C) 515-231-2554
FriedrichRealty.com

"Our priority is to move you. Delivering value and enriching lives through better real estate solutions. That's the Friedrich Way."

> On Sep 7, 2021, at 2:49 PM, Sahlstrom, Eloise <eloise.sahlstrom@cityofames.org> wrote:
>
> Good afternoon.
> As you may recall, you provided your email contact, as an interested party in the preparation of the City's 20-year comprehensive plan, known as "Ames Plan 2040." We are contacting you to let you know that the draft plan is now complete!
>
> Just as the preparation of the Ames Plan 2040 began with public workshops and community surveys intended to identify interests of residents, businesses, and the City Council, the City is again inviting public input- this time, prior to the Plan's adoption. Once approved by the Ames City Council, Ames Plan 2040 will provide policy guidance addressing growth challenges and opportunities ahead.
>
> **Access to the draft Ames Plan 2040 is available on the City's website:www.CityOfAmes.org/AmesPlan2040 and includes a feedback form.** The comment period is during the month of September.

Ames Plan 2040
Written comments from Drop-In Open House – 09-27-21

Kaleb Stevens-

I feel multi-family zoning should be expanded to counteract single-family sprawl and retain dense neighborhoods. Arts & Culture will have greater freedom to activate in spaces where more dense populations.

Jim Schreitmueller-

I think zoning should be made more denser along major roads like Duff/Hwy 69, Grand, Lincoln Way for new development. Either RN-5 or a much denser RN-4 (less detached single-family). Also, new NC zones should be NC-MU since it feels like if one has the opportunity to build housing (a major goal of Ames Plan 2040), you shouldn't limit your opportunities for growth/ take land off of the table.

More Options!
Reduce/relax parking minimums

Relax Zoning requirements. Rezone 'single-family only' to be more flexible (ex: The Habitat home on Grand & 12th (?) could/should be a duplex/triplex instead).

Jeff White-

The water in the quarry @ Hwy 35 & 30 is part of our future water supply. Protect it with parks & open spaces!

More and better bicycle trails & parks!

Kathy Svec-

I have followed the process over time and approve of and appreciate the direction that the plan has taken – it seems to touch important bases and showed to be a solid basis for the future of Ames

– BRAVO –

RE: Comm. Character- would like to know more about how the Heritage aspect will unfold = what can those who care about this do to ensure the historic fabri=c stays as intact as possible?

RE: Arts & culture – the presentation last year by Jenifer Drinkwater and the hopes for a City arts coordinator needs to be revisited and considered for some sort of action. What can those who care about this bring to the table to make this happen?

Steve Libbey-

Ames Comprehensive Plan 2040

https://publicinput.com/Customer/File/Full/136f9a5c-aa29-4b91-aa24-6c3dbd194f2d

Vision:

"An evolving city that will not only grow outwardly, but also invest in existing areas and support change within the community that ensures Ames is an inclusive, thriving, and vital community with a diverse economy, environmentally sustainable practices, and a high quality of living that meets the needs of both current and future residents."

Comments (9/21):

The Ames 2040 Comprehensive Plan (the Plan) is a fine plan with all the bells and whistles that one would expect of such at this point in time. That is to say, the Plan doesn't simply say here's what we think the future population and land use is going to be but tries to wrap in serious consideration of the many variables that play into growth and development patterns and the implications thereof on overall quality of life. That is highly laudable, but it is also nothing more than it should be. In point of fact, I would have to suggest, that is where the Plan comes up short - by being northing more than it should be.

Repeatedly throughout the Plan the assumption appears to be that growth and development is going to take place by and large along the patterns that have existed over past decades; i.e., "A rate of 1.5% is carried forward to project land use needs. This annual growth rate is just above the historical growth in Ames between 1990 and 2010" (pg 17). This population projection – slightly higher than the past 20 years which themselves included some of the highest growth Ames has seen in a long time - then drives the amount of land needed, particularly for housing. The demand for residential land appears modified by modeling a medium and a high intensity scenario. Nevertheless, the Guiding Principles of Growth in the Discover Chapter quickly bring into question the commitment of the Plan (much less the City) to actually striving toward more innovative approaches to growth and development. The blanket statement in the second Principle (G2) Contiguous Greenfield Development that "Ames will accommodate much of its projected population growth in areas contiguous to the existing built-up city" does not indicate much commitment to anything other than status quo patterns. Moreover, the Principles seem to be in conflict with each other right out of the gate. Sustainable growth (G1) and Greenfield development (G2) are not easily companionable. Additionally, placing Infill (G3) after G2 implies a higher priority on Greenfield development. This apparent assumption that not only will population growth follow historical patterns but also land use, continues to present itself throughout the Plan.

Getting into the weeds of some of the land use categories and the Future Land Use Map further seems to suggest that the Plan does little to actually move the City off the decades-long assumptions that growth and development simply follow past patterns. Residential Neighborhood 4 (RN-4), Neighborhood Core – Mixed Use (NC-MU), Redirection (Redir) seem to offer the most hope in terms of doing things somewhat differently. However, when looking at the Future Land Use Map there is precious little in these categories to be found whereas

standard Residential Expansion (RN-3) – “largely single family at low and medium densities” - is given loads of space.

Moving into Project Review - this leads almost directly to probable conflicts wherein the lowest density, least connected, least transit friendly is almost guaranteed to carry the day. To cite just Mixed Use, you find “Density/intensity. Differences in the amount or density of proposed development and its relationship to neighboring properties. A potential example could be a proposed townhome project in a low-density single-family neighborhood”.
Obviously, appropriate review processes are needed, but the blunt instrument of, essentially, stating that a higher density is a conflict with existing uses (as opposed to suggesting that, in fact, low density is in conflict with the larger, long term goals and objectives of the Plan overall) is little different than not bothering with a plan at all. Yes, step-downs, buffers, landscaping all play a role in making these things work, but the assumption should be in favor of the mixed use, higher density not the other way around.
Another example from the same section: “Traffic. Potential conflicts generated by differences in the amount, timing, and routing of traffic generated by a proposed project and existing uses. Examples might include a child care business in a residential area”. Again, a valid concern, but when is the perspective turned around to recognize development which makes it more difficult to foster active transportation, such as wide, straight roads with no bike lanes or distances beyond the typical 1/3 mile that people will walk to transit are in conflict with the Plan’s objectives? Alternately, how do we give credit to the reduction in traffic that biking, walking, and transit provide when, for example, a child care business is proposed adjacent to mixed transportation options even if it is also in a residential neighborhood?

The vision stated at the outset of the Plan is a “*community that ensures Ames is an inclusive, thriving, and vital community with a diverse economy, environmentally sustainable practices, and a high quality of living that meets the needs of both current and future residents*”. You will not achieve that vision by relying upon perspectives that assume low-density, auto centric development as the standard against which all else must compete. The presumptive outlook must be turned around to strongly support that higher-density, mixed-use, multi-modal is the direction of the future toward a “*vital community*” and that patterns which run contrary to that are the ones in conflict.

If the Plan was actually driven from that assumption (that higher density is the normative form for future development), one would expect to see more land identified as Mixed Use in its various forms and descriptions. As but one example, one should think that the North Grand Mall area would be considered an Infill or Redirect and/or evolution into RN-MU or RN-4 since it already has an over-abundance of parking, existing connections to transit and bike lanes and other commercial and varied residential density surrounding it. This would seem a likely block also due to the continually changing viability of brick and mortar retail. Other examples like this are not that difficult to find, even in Ames. But to even identify these possibilities, much less support shifting development patterns in that direction, requires actual commitment to the vision of the Plan which, simply stated, is not the impression one gets once you read beyond the stated vision.

From: webnotification@cityofames.org <webnotification@cityofames.org>
Sent: Monday, September 27, 2021 5:03 PM
To: WebMaster <webmaster@cityofames.org>
Subject: Feedback for City of Ames, IA

[External Email]

You have received this feedback from Erv Klaas < eklaas@iastate.edu > for the following page:

https://www.cityofames.org/government/departments-divisions-i-z/planning/comprehensive-plan

Whom ever developed this plan did an inadequate job of identifying critical environmental areas. The most glaring example of this was in allowing for housing development on the property adjoining Ada Hayden Heritage Park formerly known as Rose Prairie. When it up for sale late in 2020, the Friends of Ada Hayden Heritage Park proposed several alternatives to protect this property. Our proposal was turned down with very little explanation except that housing the owner was working on a housing development plan. So, why did the city delay actively working to make our proposal active. This was a huge mistake for the future of the Park. I do not have the time to evaluate all the other land areas in the plan but the Skunk River Greenbelt is very important. Also consideration should have been given to limiting growth. I would welcome a no growth policy. We have reached out limit with respect to land area, drinking water, and the use of fossil fuels.

Ames Bicycle Coalition-

ABC Comments on Ames Comprehensive Plan 2040

The Vision stated at the outset of the Plan is laudable:
"An evolving city that will not only grow outwardly, but also invest in existing areas and support change within the community that ensures Ames is an inclusive, thriving, and vital community with a diverse economy, environmentally sustainable practices, and a high quality of living that meets the needs of both current and future residents."

Unfortunately, based on the contents of the Plan, it appears highly unlikely that this Vision will be achieved. As one of the only advocates for active transportation in Ames, the Ames Bicycle Coalition finds the 2040 Plan decidedly disappointing.

Throughout the Plan is evidenced that the standard assumptions about growth and development will continue to hold sway in Ames for at least the next 20 years. The primary assumption in this plan appears to be that growth will primarily be accommodated through development on the edge(s) of Ames and specifically in the land use form identified as "Residential Expansion (RN-3)" which is defined as "largely single family at low and medium densities". That is basically the type of development that has given us a community that is already behind the times in terms of fostering the efficiencies needed to minimize costs as well as to support transit, bicycling, walking and other forms of transportation. Alternative transportation requires change from the status quo and could actually move us toward a future that does achieve the stated vision of this Plan – one that is diverse, environmentally sustainable, and offers a high quality of life.

ABC does not question whether good and serious thought has been given to the proposals in this Plan. However, we do question the commitment of the Plan (and the City) to actually make the changes necessary to move toward the stated Vision. When the Guiding Principles use the blanket statement already in the second Principle that "Ames will accommodate much of its projected population growth in areas contiguous to the existing built-up city" it does not evoke much confidence in a willingness to anything other than status quo patterns.

This very principle, in turn, essentially guarantees that Ames will not be fostering any significant increase in the efficiencies needed for other modes of travel than single use automobile.

Sections pertaining to the Review Process further support the impression that the Plan relies very heavily on the assumption of status quo. To cite just one example from this section: "Traffic. Potential conflicts generated by differences in the amount, timing, and routing of traffic generated by a proposed project and existing uses. Examples might include a child care business in a residential area". Obviously, a valid concern, but it clearly indicates the status quo assumptions of the Plan. Rather than relying on the perspective here that the traffic caused by a child care business is necessarily to be avoided, the Plan should be exploring how to foster development that facilitates child care businesses in residential neighborhoods – since that is precisely where they logically should be – by developing with residential patterns and densities that encourage transit, biking, walking, and other micro-mobility. A child care business that

doesn't require auto traffic increases and allows parents to not have to make extra trips beyond their neighborhood to child care is the type of development that fosters the vision of the Plan.

As long as the Plan relies upon perspectives that assume low-density, auto centric development as the standard against which all else must compete, it will not achieve the stated vision. The presumptive outlook must be turned around to support patterns of higher-density, mixed-use, and multi-modal. That is the direction of the future toward a "*vital community*" and patterns which run contrary to that are the ones in conflict.

Readjusting the Plan with to truly support the goals of sustainability, diversity, and efficiency does not require major changes in what the Plan contains, but it does require real commitment to the vision the Plan claims to support – we hope the City is ready to demonstrate that commitment.

Sincerely,

Ames Bicycle Coalition

Steve Libbey,
Carol Williams

From: grantridge@aol.com
To: Sahlstrom, Eloise
Subject: Question and Comment about Draft Ames Plan 2040
Date: Wednesday, September 29, 2021 11:27:39 AM

[External Email]

Hi Eloise Sahlstrom,

Thank you for sending a reminder earlier this month that the comment period for the Draft Ames Plan 2040 lasts through September. I have attended several public meetings about the plan over the past few years and have made previous comments.

The Plan seems to me to reflect serious efforts to consider the importance of protecting natural resources and also consider environmental impacts. Those issues are especially important to me, so I appreciate those efforts. I have one question about the Plan and one comment.

My question is in regard to the map on page 78 called "Urban Fringe: Annexation and Fringe Area." I need to look at that map more carefully because it's hard for me to read.

My question is whether, if I see any corrections to that map that seem to be needed, I need to submit that correction information by the end of the day on September 30th. Is that map considered permanent, or is that map considered somewhat fluid because, I presume, new development may take place in a few places in the fringe area in future years? If I see any land that is labeled as "Story County Urban Reserve" but should be labeled as "Natural Areas," does that information need to reach you by tomorrow afternoon?

My comment is in regard to the proposed East Expansion Area as shown on Page 36. I think I've seen a couple of small-map versions of how that area might be developed, but neither version showed the existence of a significant 36-acre high-quality wetland and prairie area that should be protected, rather than developed into a residential area as shown on the current small map. The property ID number of the wetland/prairie is 06-29-200-410.

The small East Expansion Area map shows a proposed green corridor of open space, but that corridor does not include the wetland/prairie. I tried to determine whether the Urban Fringe map on page 78 shows the wetland/prairie as a natural area. But in spite of much squinting and attempts to use my limited computer skills:-), I was unable to tell.

As noted in the Plan, it is very important to protect existing natural areas as well as create new parks and open spaces. I think all maps of the East Expansion Area and the Urban Fringe Area should show the wetland/prairie, and it should be considered an area to protect.

Thank you very much for your work on the Plan. Best wishes --

Cindy

Cindy Hildebrand
grantridge@aol.com
57439 250th St.
Ames, IA 50010

"I hear the heart-stirring whistle of an upland plover; time was when his forebears followed the buffalo as they trudged shoulder-deep through an illimitable garden of forgotten blooms." (Aldo Leopold)

From: grantridge@aol.com
To: Sahlstrom, Eloise
Subject: Re: Question and Comment about Draft Ames Plan 2040
Date: Wednesday, September 29, 2021 5:11:01 PM
Attachments: image001.png

[External Email]

Eloise, thank you very much! I'm glad you can read the map better than I could.

I contacted the owner of that 36-acre parcel today (Mike Meetz), and was told that the entire parcel is now protected by a permanent conservation easement. That means future development of that parcel is legally prohibited.

I can't remember if the Plan has a designation for land protected from development by permanent conservation easements. Perhaps if nothing else, such parcels, when known, could/should be designated on Plan maps as natural areas(?) Thanks again!

Cindy

Cindy Hildebrand
grantridge@aol.com
57439 250th St.
Ames, IA 50010
515-232-3807

"I hear the heart-stirring whistle of an upland plover; time was when his forebears followed the buffalo as they trudged shoulder-deep through an illimitable garden of forgotten blooms." (Aldo Leopold)

In a message dated 9/29/2021 1:31:42 PM Central Standard Time, eloise.sahlstrom@cityofames.org writes:

Cindy, I looked at the map and the area marked by the blue arrow is the same area- at least the wetlands portion, that you are mentioning. See attachments.

Kind regards,

Eloise Sahlstrom

Planner

Planning & Housing

190TH ST
570TH AVE
580TH AVE
200TH ST
INTERSTATE 35 S
210TH ST
INTERSTATE 35 N
220TH ST
E 13TH ST
TELLER AVE

From: KATHERINE A SVEC
To: Sahlstrom, Eloise
Subject: Re: Feedback Sought on Draft Ames Plan 2040
Date: Wednesday, September 29, 2021 8:49:03 PM
Attachments: image001.png
image004.png

[External Email]

Eloise,
I attended the drop-in session at the Library on Monday and enjoyed seeing the maps and talking to staff.
I think The Plan has been well-thought out and includes things of importance to me personally and to the community. It has been a huge effort - but a successful one and I want to offer my Bravos to all who took part.

I wanted to mention one thing. I noticed the gap in the bike path on Grand from Murray Drive to Lincoln Way and asked about it. There is apparently no plan at this time. I was actually very glad to hear that!

We live at 6th and Grand and over time, have lost a lot of property to public transportation and would not like to lose any more. That stretch of Grand Ave just doesn't have much space to offer, and if a plan does develop, I hope that it will be very minimal and would not encroach on residents' lawns and landscaping. We have plantings that provide privacy from a busy street as well as important shade for our house. To strip those away would be a great loss that would affect the value of our property.

Thanks for letting me comment.

Kathy Svec, 603 Grand Ave.

From: Sahlstrom, Eloise <eloise.sahlstrom@cityofames.org>
Sent: Tuesday, September 7, 2021 2:49 PM
To: Sahlstrom, Eloise <eloise.sahlstrom@cityofames.org>
Cc: Diekmann, Kelly <kelly.diekmann@cityofames.org>
Subject: Feedback Sought on Draft Ames Plan 2040

Good afternoon.
As you may recall, you provided your email contact, as an interested party in the preparation of the City's 20-year comprehensive plan, known as "Ames Plan 2040." We are contacting you to let you know that the draft plan is now complete!

Just as the preparation of the Ames Plan 2040 began with public workshops and community surveys

From: Sahlstrom, Eloise
To: Sahlstrom, Eloise
Subject: FW: Feedback for City of Ames, IA
Date: Thursday, September 30, 2021 12:06:58 PM

From: webnotification@cityofames.org <webnotification@cityofames.org>
Sent: Wednesday, September 29, 2021 9:10 PM
To: WebMaster <webmaster@cityofames.org>
Subject: Feedback for City of Ames, IA

[External Email]

You have received this feedback from Erv Klaas < eklaas@iastate.edu > for the following page:

https://www.cityofames.org/government/departments-divisions-i-z/planning/comprehensive-plan

I have read the 2040 plan several times. As I expected, this is "business as usual." Grow, grow, grow. Have any of you who constructed this plan read "The Limits to Growth" by Donella Meadows, et al.? Published in 1972, a team of MIT scientists completed a study of the future if present growth continues. Their inescapable conclusions are beyond anyone's grimmest fears. Despite making headlines the world over, policymakers continue to advocate for GROWTH. The Ames 2040 plan is a perfect example. The plan ignores the following: Ames was built on a swamp and we have exceeded the available land needed for growth without taking valuable productive land that is needed to grow food. Our soils are some of the richest in the world. We have nearly exceeded our drinking water aquifers. Millions of gallons of water are now being diverted to produce ethanol to burn in cars. Millions of bushels of corn are being grown for the same purpose. We have exceeded our capacity to treat human waste and safely dispose of it in our rivers. We have exceeded our capacity to dispose of solid waste, especially plastics. We tear down old buildings and build new ones at a terrific cost of adding more carbon dioxide into the atmosphere. The atmosphere is fast losing its ability to absorb this pollutant. Where are the jobs to employ these new people. Climate change is going to cause a huge migration of people into the Midwest; we should be discouraging people from moving here, but the message from our Chamber of Commerce is to entice more people. We need a major paradigm shift to a "no-growth" mentality. The collapse will not come gradually, but with awesome suddenness with no way of stopping it. The 2040 Comprehensive Plan is a blueprint for disaster. Scrap it and start over.

From: Tam Lorenz
To: Sahlstrom, Eloise
Subject: Comments: Ames Plan 2040
Date: Thursday, September 30, 2021 1:11:21 PM

[External Email]

Dear Eloise,

Thank you for taking the time to explain various terms and concepts used in the Plan, when I visited the open house at the Library on Monday, 9/27.

As I mentioned when we spoke, I think I've attended most 2040 input events and listened to most discussions of the Plan during City Council meetings. Even so, trying to make coherent comments or ask questions about such a massive document is daunting. I admit, there were sections I only skimmed. Despite some of my more critical remarks below, I do realize and appreciate all of the time City Staff, the Council and consultants have put into the Plan and the goal of directing and humanizing growth policy.

Page 33: The term "scale" is defined by using the undefined term "step-down". I did not know what it meant until you drew an illustration. Although it may be a term of art, well-known to planners, I'm not sure its meaning is clear to the general public from whom you are soliciting comments. Maybe a diagram/graphic or definition of step-down would help understanding.

Page 53: Land Use: Categories: RN-1: Development Guidelines section: bullet 3: ADU

> I know the idea of accessory dwelling units (ADU) in traditional neighborhoods seems to have taken hold of the planning imagination in Ames. I think this concept is just one more way to crowd more people into already compact neighborhoods. Ames went through such a painful process to try to limit rental density in campus overlay neighborhoods, only to be thwarted by the state legislature. Building ADUs within traditional neighborhoods seems to be at odds with the goal Ames was trying to accomplish with the failed rental density control regulation. I really don't see a significant difference between cramming more people into one house on a property versus increasing the population density on the same property via an ADU. The result is the same: more resident and automobile activity in a limited neighborhood space. I hope the City can relinquish the ADU concept as a housing solution and realize the concept can simply make existing neighborhood life more congested and loud.

Page 118: Housing Choice and Attainability: ADU
Please assume I have the same objection to ADUs as stated in H1-3 and implied in H2-1 and the Lincoln Way Corridor Plan for the Oak to Riverside neighborhood.

Page 53: Land Use: Categories: RN-1: Development Guidelines section: bullet 5: office and commercial uses

Please delete this concept! While the stated goal is to preserve residential scale, it does not address heavier traffic patterns within a compact neighborhood. The placement of such business is projected to be along "avenues, mixed use avenues and thoroughfares". These roadways through or adjacent to neighborhoods are busy by design and practice. Adding businesses along an avenue, for example within an RN-1 neighborhood, will push traffic through the neighborhood on side streets, because driver egress through less busy side streets will be "faster" than exiting onto a busy avenue. My RN-1 neighborhood is already adjacent to the currently, relatively quiet Redirection land use category (p. 64) that the Plan's Characteristics section describes as "opportunities for major redevelopment" and recognizes the area is "currently low intensity of use areas". Therefore, the Plan allows increased commercial use (p. 53)on Lincoln Way and in the Redirection (p. 64) area immediately east of N. Oak. Along with the proposed aquatic center at Lway and N. Oak, the Plan could easily facilitate a huge jump in traffic volume on Lincoln Way and through my neighborhood.

Page 66: Land Use: Categories: Near Campus Overlay:
Goals bullet number 3:
"Developing clear edges and transitional standards to moderate near off campus-related densities to protect adjacent traditional neighborhoods."
Please re-write as follows:
Developing clear edges and transitional standards to moderate near off campus-related DENSITY OF DWELLING UNITS to protect NEIGHBORHOODS WITHIN THE OVERLAY. If the "neighborhoods within the overlay" language is not acceptable, please remove the word "adjacent" from the current phrase, " to protect adjacent traditional neighborhoods". The land use category being discussed IS the near campus overlay. I think bullet 3 is attempting to communicate the goal of standards that moderate near off campus-related dwelling unit densities to protect the overlay neighborhoods themselves. The word adjacent communicates the protection is focused not on the overlay neighborhoods, but on neighborhoods that are "adjacent" to the overlay neighborhoods. Note: Some of the neighborhoods covered by the overlay are not strictly "adjacent" to campus.

Page 119: Policy Framework: H4-3:
The text on the page ends with the word "to". Do you mean "too" or is is the last part of that sentence missing?

Page 121: Mislabeled drawing? The category addressed is the Near-south downtown subarea, but the adjacent drawing is labeled Near-south campustown subarea.
The plan to greatly increase housing density in my neighborhood (south of the RR tracks) again puts more traffic pressure on the area, especially because the City also plans to build the aquatic center across the street from the southern border of the area illustrated. Also, I find it amazing (and not in a good way) that a "rail side park" is envisioned. It would encourage play immediately next to one of the most dangerous features of Ames and it is not under the control of the City.

Page 126: Conditions: Character of Ames
The colors on the key/legend for the map does not match the corridor colors: the green on the map is not represented in the key.

"[S]treets feature a … extensive tree canopy"

As I mentioned at the beginning of this long email, reading and commenting is daunting. If I missed the part of the plan that addresses the importance of tree planting, I apologize in advance:
One of the omissions of this plans seems to be the importance of restoring the dwindling tree canopy in Ames. Over the last 50 years, I've watched Dutch elm disease and the emerald ash borer, plus the 2020 derecho, devastate the number of mature trees. It seems that only recently has there been a refocusing on the trimming and care of the City's trees. I am thankful for this effort, but much more needs to be done to regularly PLANT trees on City-owned land. To accomplish this, we need a stated goal and dedicated funding.
Therefore:
1. Please add a tree-planting goal to the 2040 Plan.
2. Add the planting of conifers to landscape requirements for new, large commercial or residential construction. Remember, we live in Iowa and deciduous trees and ornamental grasses do little to screen such constructions during at least half of the year.
3. Recognize the role of trees in improving the air quality of the City and include a similar goal in the City's Climate Action Plan.

Thank you for reading this long email. Again, I appreciate all of the time the City has put into this Plan.

Tam Lorenz
311 S Maple Ave

Kim & Becky Christiansen comments-

Dear Eloise,

We appreciate the efforts of RDG and the city to develop the new comprehensive 2040 Plan for Ames and to encourage public input throughout the process. It isn't feasible for us to study every detail of the plan so we focused on the area we are most familiar with - our rural Southwest Ames neighborhood.

Reading through fine print, we came upon a specific area of concern. On the Tier map our neighborhood south of Highway 30 in the Southwest is shown as a Tier 2. In the plan's descriptions of the four tiers on page 40, we noted that the Tier 2 criteria specifies that "infrastructure is available with extensions of existing lines under ½ mile". In fact, the chart on page 42 states that the wastewater trunkline would actually need to be extended approximately 1.5 miles to service the Southwest. Therefore, classifying the Southwest area (south of Highway 30) as a Tier 2 was incorrect.

Most of the other Tier 2 criteria listed seem vague, but another states that Tier 2 can be developed in the short run when adjacent to the developed city. It would be a stretch to label the Southwest area (south of Highway 30) as adjacent to the city as it is separated from the city by Highway 30, which obviously creates a natural barrier. On page 41, there is more language suggesting that the Southwest Tier 2 area could be developed during the planning period. We aren't sure what that means, but it appears this would be contrary to the priority vote of the city council, which does not include the area south of Highway 30.

The city planner has told us that this tier issue is irrelevant because the council has voted for specific priority areas that do not include the area south of Highway 30. However, we believe, for the sake of clarity and to avoid confusion in the future, it is important for the planning document to be correct. Referring to the Tier definitions, it is clear that the Southwest area (south of Highway 30) does not qualify as a Tier 2 and would more accurately be defined as a Tier 3 or 4. We respectively urge you to make this change.

Another area of concern is the inclusion of the former Champlin Farm and its surroundings as a development area in the 2040 Draft Plan map when it should be in the fringe. This area is part of the Worle Creek corridor. We can find no record of this area being included in the earlier working documents. Yet, it somehow made it into the current draft plan with a designation of RN-3, an unfortunate high density expansion area for the beautiful and environmentally sensitive Worle Creek corridor.

Using the definition of "Open Space" as written on page 47 of the plan, the entire Worle Creek corridor that runs from our Southwest neighborhood and east to Meadow Glen fits the "Open Space" description well. Yet, it is not designated as such in the 2040 Draft Plan. The Worle Creek corridor is unique, special and must be preserved. It's one of the few natural ecological areas left in this community. There are mature trees, rolling hills, steep ravines and abundant and rare wildlife. The pristine creek should never be used for storm water runoff. Given the community's important emphasis on green space, we believe Worle Creek is an area that must be protected. We've been told that "Open Space" refers to a floodplain, but that isn't mentioned in the definition. It's a mistake to designate the Worle Creek corridor as anything other than "Open Space" per the city's definition. Please take our concerns under consideration.

Thank you for the opportunity to express our views.

Sincerely,

Kim & Becky Christiansen
2985 South Dakota Ave
Ames, IA. 5001

From: grantridge@aol.com
To: Sahlstrom, Eloise
Subject: Corrected Final Comment on the Ames Plan 2040 (please use this instead of the version I just sent, thank you)
Date: Thursday, September 30, 2021 5:04:32 PM

[External Email]

To help ensure the accuracy of the Plan maps, I want to point out that a 145-acre parcel in Grant Township in the Ames Plan 2040 Urban Fringe area is mostly a combination of four wetlands, prairie, creeks, and riparian trees and other vegetation. Some of the land is enrolled in USDA conservation programs.

The ID numbers for the land are below. The land is owned by my husband and myself, and we would like to keep it in its current natural condition forever. Thank you for considering this comment.

10-17-400-100

10-17-300-455

10-17-400-300

10-17-300-200

Cindy Hildebrand
grantridge@aol.com
57439 250th St.
Ames, IA 50010
515-232-3807

"I hear the heart-stirring whistle of an upland plover; time was when his forebears followed the buffalo as they trudged shoulder-deep through an illimitable garden of forgotten blooms." (Aldo Leopold)

Where's the investment in the future? I feel there's a lot of kick-the-can-down-the-road, "we'll get to it when we get to it" mentality to these plans. There are difficult, expensive projects with limited immediate benefits that need to be done in the name of future investment, but these are being ignored in favor of "pro-growth" commerce driven models with short-term, "safe" outcomes. Future generations will find that these aren't as safe as you would like them to think.

I have lots of comments on individual pieces of the plan that I would like to leave, but the bottom line is, I want my tax dollars spent on things that will stand the test of time; that is, when I am dead, they'll still be here and as useful as the day they were built. Examples from the previous generation are the systems of county roads that Ames is using to channel its sprawl, and the bridges they have. You keep expanding up and down GW Carver, North Grand, South Duff, University Blvd, Dakota, Cameron School Rd, Dayton; taking advantage of that infrastructure and the basic needs they provide (like bridges over Ioway and Skunk and some rail lines.) What I want to know is, where are our contributions to the NEXT generation? What are we leaving that they can build on?

Examples: Why isn't Bloomington Road being lengthened to I-35 and Dakota, with the bridges across the waterways? That was in the plan a while ago, where'd it go? What about that plan to extend University north to 13th? Gone like the wind.

I want you to invest in future infrastructure at the same rate as you are taking out by utilizing that existing infrastructure.

27 days ago

Reply 5 Agree

Hector Arbuckle I know that Council and staff have been working on this plan for quite a while. However, I am sad to say that this plan is fundamentally flawed. It is flawed because still embraces the radical urban-planning ideas of the 1920s and 1950s: auto-centric hierarchical transportation networks and separation of uses and densities, at great expense to the long-term health, well-being, and fiscal integrity of the community.

To build a vibrant and financially sustainable community for the future, we should be creating a non-hierarchical transportation network of streets (<15 mph), as well as removing the vast majority of zoning restrictions. We are throttling sustainable growth and development throughout our city by our extremely strict zoning restrictions, which make high-demand walkable communities illegal to build without special permission. Because we have kept the built-up portion of the city in such a tight grip, we are forced to develop on the outskirts, which means expensive infrastructure expansion - as well as increased carbon emissions and loss of agricultural land.

The City has the opportunity to reimagine what Ames can be, to embrace traditional development as it is practiced almost everywhere else in the world. We should take this opportunity to make Ames a walkable, sustainable, fiscally sound community that will thrive for generations.

Note: Re-uploaded because of a pretty major typo.

8 days ago

Reply 4 Agree

Emily I would like the city to increase healthy, affordable and safe rental housing within the city, especially those that are marketed towards university students and to begin using a property maintenance code rather than a home grown ordinance (and make amendments where needed). I understand that it is listed as a goal/objective but it is very much needed sooner. More stringent enforcement is needed on rentals. Training sessions should be mandatory for landlords + leasing agents so that they understand what is legal to place in a leasing document/rental agreement.

Additionally, the transportation and climate action provisions should have more equitable approaches to minimize impact to underrepresented/underserved communities. Last, the city needs traffic calming measures, especially on Duff and Lincoln and to expand pedestrian use/alternative modes of transportation. Campustown is a great example of a space that would benefit from street closures to allow for pedestrian-only access. We also need safe crossing areas, especially near bus stops. Mortensen Road is desperately needing this due to those that are speeding on the road.

9 days ago

Reply 4 Agree

Hector Arbuckle I agree, we need traffic calming measures, especially on Lincoln Way between Campus and Campustown. Drunk college students and 30+ mph traffic is a recipe for a random but predictable tragedy. I also agree that street closures could be wonderful for Campustown, especially during the night when it is extremely crowded with people whose senses of judgement are impaired.

9 days ago

2 Agree

Chris Seymour Stop with the residential expansions in the SE without first putting relief paths off Duff. Cramming thousands of drivers onto single paths isn't fixed by adding more stop lights. I can see I won't make it here till 2040.

28 days ago

Reply 4 Agree

Heritage and historic preservation still receive too little attention in the present draft. As others have pointed out, a potentially historic house on the corner of Hayward and Hunt (a mid-century Lustron-type house, and a unique variant at that) is targeted for redevelopment as part a "redirection area." A simple inquiry to the City of Ames Historic Preservation Commission would have raised this as possible red flag. In general, National Register of Historic Places-listed and -eligible properties and districts, as well as their local equivalents, should have been called out in the "Community Character" section of the plan and in the maps. Even a passing mention of federal and state tax subsidies to encourage historic rehab work would also have been appropriate. These incentivize the reuse--the recycling--of Ames's older, greener, more walkable, sustainable neighborhoods.

8 days ago

Reply 3 Agree

Maureen Ogle You refuse to manage car traffic now, making area north of the university a speedway. You refuse even to install stop signs so that pedestrians can safely cross streets. If you refuse to manage traffic now, then why bother with this plan? Seriously. You won't install basic safety measures, yet you're heading off on a plan that assume many more people. I don't get it.

9 days ago

Reply 3 Agree

Hector Arbuckle For the financial, ecological, and social well-being of the city, we need to re-embrace diversified, walkable neighborhoods. Walkable neighborhoods are in demand now, but Ames zoning forbids them throughout much of the city. The City should no longer create exclusively low-density residential districts. Instead, new neighborhoods in recently annexed areas should allow a diversity of land-uses - but *not* assign specific areas to each kind of land-use. Furthermore, restrictive minimum parking requirements, minimum lot sizes, and minimum frontages should not be applied to these new areas.

3 days ago

Reply 2 Agree

Jody Chittick I want to know what the "Traffic Calming Project" on Hyde Ave that money is allocated to. I have lived on Hyde for 15 years. The traffic and speeding is out of control.

8 days ago

Reply 1 Agree

I want to ask about the foundations of "de-carbonizing" or whatever it is called. 1. Driving on I-90 through Montana just last month, we observed mile-long train after mile-long train after mile-long train loaded with coal and heading west. There cannot be that many coal-burning power plants on the West Coast, meaning that coal is likely headed for export. If that much coal is being exported, what is the point of Ames' plan to de-carbonize? Ames might as well be spitting in the wind because there are no partitions in the atmosphere. 2. What happens if atmospheric carbon dioxide is reduced to zero ppm? (Answer: planet Earth becomes a barren, dry, cold, and lifeless rock. CO_2 is not a pollutant. 3. What happens inside a greenhouse when additional CO_2 is injected, not too much but some? Perhaps plant growth becomes luxuriant? 4. Finally, if scientists are PAID to proclaim that water is not wet, would that still be science? (In other words, scientists are human and can be corrupted just like anybody else.) I'd really like to see some honest and truthful answers to these questions before Ames jumps off a cliff onto the rocks below.

24 days ago

Reply 1 Agree

I predict the climate action plan will determine that the September 2021 draft of Plan 2040 would not help reduce the carbon footprint of Ames enough. Put the Plan 2040 process on hold until the Ames climate action plan is finalized.

2 days ago

Reply Agree

The integration of the climate action plan was mentioned several times in the Ames 2040 plan. This is encouraging to see, and I would strongly urge the city to be open to adapting the 2040 plan as necessary related to the climate action plan and a need for quick, bold action on climate that will make Ames a leader in climate action and climate justice.

3 days ago

Reply Agree

Annonymous comments-

Ames 2040 Vision: No More Islands

I have lived at my current address in Ames for 14 years, and **I live on an island.**

This is not the sort of island that involves water. **This is an island of a neighborhood cut off from the rest of Ames by a busy road and government disregardance of the "extras" a community needs to go along with the busy road.**

My neighborhood is the Creekside Trailer Court. We are located on the south side of South 16th Street between the Old Orchard Trailer Park and Copper Beech Apartments. **We have no sidewalk on our side of South 16th Street to lead us out of our community as pedestrians.**

When my children were young, this was an inconvenience, but I didn't want to complain for just our sake. To travel beyond the limiting 1-mile loop of our neighborhood meant crossing the uneven grass bump-bump-bumping along with a double stroller, or pushing a regular stroller while managing a kid on training wheels, or herding both kids across a busy road.

Several years ago, I was giddy because our city felt that South 16th needed to be widened to four lanes. Surely a four-lane road is busy enough to merit sidewalks on both sides of the street! But our city planners could not think that far ahead. No sidewalk was built, and no safe way to cross a four-lane road was created.

The area has seen a lot of development since then. Three major apartment complexes: Laverne, Copper Beech, and The Grove apartments have been built. Extra buses travel along the length of South 16th. With this major increase in population, followed by increased traffic, surely our city would run sidewalks along both sides of South 16th because...well, because there are a lot of people here, and we have a busy four-lane road that cannot be easily crossed. Again, I was disappointed. The college students shluck through the snow in the winter and the shmuckne (mud) in wet weather. Nothing has changed.

At this time, the city of Ames built the very nice little Greenbriar Park. It is not easily accessible from our island. We have a road that is busy enough to be a four-lane road, but no lights to cross it safely. If one is young and spry, this is not a problem. If one is old, disabled, or a mom with small children, this becomes a dangerous game of chicken while crossing to the park.

Our nearest Elementary School is Mitchell. Our town has a group that likes to boast that every kid can ride their bike to school! I can only roll my eyes, because this doesn't safely apply to kids in my neighborhood. My kid would have to cross a busy four-lane road during morning rush hour; then repeat the process again during afterschool traffic. We live on an island.

Our family lives a mile from Reiman Gardens. We are members, and for years, our family has enjoyed the fabulous classes and displays offered there. To ride our bikes to Reiman, we must cross a four-lane road, travel one block west, cross the same four-lane road again (because the

sidewalk on the north side of South 16th ends), and continue on our way. On our original trip returning from Reiman in this way, we opted to not cross the four-lane road for the last block to our neighborhood. After all: it's only a block! We rode our bikes inthe four-lane road. A car swerved right before my 7yo daughter's bike to turn. IMO, a four-lane road is not a good place for seven-year-olds to ride their bikes. But...no sidewalk = no good choices. You may disagree with my opinion.

Twice, I have spoken to our City Council representatives about this situation. With both groups, the response is: "There is no sidewalk on the south side of busy South 16th!?! You DO need a sidewalk there!" I wrongly thought that because the people in charge agreed that we needed a sidewalk...we would get a sidewalk. I didn't understand how our City Council works, in that I would need to whine and complain and beg and harass subsequent meetings of our City Council until they relented for this safety measure which would increase green travel for the citizens of the South 16th neighborhoods (Old Orchard, Creekside, Copper Beech, Pheasant Run). My health does not allow for this sort of sustained effort.

And I can understand why both groups of former City Council members never followed through: None of them live here; none of them visit here; none of them know anyone who lives here. They're not heartless, cruel, or evil. They just don't have a reason to specifically care about us.

Even when I was younger, I was famous for major falls that would leave bruises the size of dinner plates on my body. Now I am 51. I imagine growing old in this quiet neighborhood of Creekside. Eventually, it will be time to hang up my car keys to walk or take the bus two doors down from my house. Will I be able to reach the bus stop without incident with no sidewalk? This is an issue for everyone who is not young and spry: the elderly, the disabled with wheelchairs and walkers, young moms with strollers. We're all caught on the island with no way off.

Ames Plan 2040 is an opportunity for Ames to envision the type of community we want to create.

I propose that we have NO MORE ISLANDS.

If a neighborhood is situated near a road that is busy enough to be a four lane road:

1) Mandate that pedestrian sidewalks/bikepaths are present along the four-lane road on AT LEAST the side of the community.

2) These travel paths must reach somewhere meaningful. For example, a stretch of sidewalk in front of a development is a waste of resources if the sidewalk does not extend far enough to reach another sidewalk or bikepath outside of the neighborhood. The goal is to keep pedestrians and bicycles out of four-lane roads. Don't be idiots, and don't allow loopholes for these mult-million-dollar companies to skimp on the safety of Ames citizens.

3)Mandate pedestrian lights to safely cross the road. There is a pedestrian light in front of Stadium Suites Apartments and another to cross Duff Avenue near the hospital. For the number of developments along South 16th, the population density, and the length of the road, we should have one located for easy/safe crossing near each bus stop pair. This would give us three for the current island communities.

4) Seek out other islands in Ames, and reach them. This is a quality of life issue, and this is a safety issue. I know of at least one other island besides the South 16th islands where I have seen people walking at sunset in the busy road for a lack of sidewalks. It may not be a four-lane road, but it IS in the city limits, and the road speed is 45mph. Again: do you want people walking in the road next to 45mph cars? No sidewalks = no good options.

Thank you for your consideration of this situation.

In all honesty, based on my former experience with the Ames City government, I don't have any hope at all that anything will change or that I will hear anything but lip service from City Hall. As I said before: the people making the decisions don't live here, don't know anyone who lives here, don't visit anyone in our neighborhood, and have no reason to care about us. The best predictor of future behavior is past behavior, and the Ames City government doesn't have a good track record of caring about us even when it is brought to their attention.

I'm not even going to sign my name because I feel so hopeless that anything will actually change.

Christine Hausner To Council:

This letter is concerning the 2040 plan with regards to SW Ames and specifically the Champlin Farm. I'm sure you are well aware of who I am by this point that I won't reintroduce myself. This will be thorough because it needs to be. I am speaking on behalf of my family, my parents, and neighbors.

I am a bit confused, as at the last city council meeting I attended last year, the council voted to NOT have south of Highway 30 as part of the growth prospectus and now I see it is back on with tier 1 and/or tier 2 classification. The definition of those tiers, unless I am mistaken, is that utilities have to be within ½- mile of the proposed area. The utilities are actually 1.5 miles away so I'm not sure how that makes sense. Another issue I see is the change in designation of the Champlin Farm (which is no longer on the market) from rural residential/ag to an RN-3 which is medium to high-density housing but it isn't a tier anything and not even in the growth prospectus so I am questioning why that would be as well. Cory with RDG said himself that, during their consulting, they found that SW Ames was unique in that it was a rural community, his exact words being "rural community." They advised staying out of this area I would assume mostly due to the close proximity to ISU property...yet here we still are. The last I knew, SW Ames wasn't a tier anything and was not in the growth plan...yet here we still are. Kelly himself said that looking south of Worle/Worrell Creek would not be beneficial...yet here we still are. So, I am once again going to go over the reasons why all of us in this area are fighting this.

I would like to direct you once again to the ecological/archaeological study commissioned by the city that was done in 2005. You may find that here.

https://www.cityofames.org/government/departments-divisions-i-z/public-works/engineering/worle-creek

I have taken some statements from that study that highlight the general summary of these findings.

In the fauna report by Dr. Keith Summerville from Drake he states in his summary he recommends:
"Because of time constraints associated with this work , additional data on faunal species likely to occur within Worle Creek area"
" the entire Worle Creek area functions as a *moderate to high quality greenbelt*." "to pursue additional and more intensive field surveys of the area of the area for both bull and smooth green snakes both which are of special concern in Iowa, to conduct a more temporally extensive butterfly survey that fly in spring and mid to late summer and pursue sewer engineering options that significantly reduce fragmentation of existing woodland habitat in the Worle Creek area."

In the Floristic Quality Assessment by Cathy Mabry McMullin and Don Farr both of Iowa State
"The Norris study conducted in 1994 used the rapid assessment method which was highly sensitive to the presence of exotic shrub species of brush honeysuckle and multiflora rose. his study did NOT include tree size (a factor recommended for subsequent studies). The Norris method was not designed to include herbaceous vegetation. Our inclusive study of the understory species revealed a surprising floristic richness, reflected in higher quality ratings than those based only of woody species."

"Spring inventory was conducted April 28 to May 12 and summer inventory conducted June 2 to July 7, 2004."

"Because our inventory ended on July 7, roughly halfway through the growing season, and carried out relatively quickly by two researchers, the number of species in each parcel and for the corridor as a whole should be considered a minimum. Therefore, because the FQI (Floristic Quality Index) is in part determined by native species diversity, additional botanical work would undoubtedly result in a higher parcel and overall FQIs."

State Archaeologist Cynthia L. Peterson
Given that the potential for surficial and subsurface archaeological sites exists, Phase I archaeological investigation is recommended with 55-ha (54.6 percent) of the 100.7 ha project area to locate potential archaeological sites prior to any planned ground disturbing activities."

The following are rare and infrequent plant species that were inventoried for the Journal of Iowa Academy of Science in 2001. I have attached a copy of this study.

22	Worle Creek (West)	T83N R24W sec 17 se1/4; 41°59′50″N, 93°39′50″W	Wrp; Ops	*Agastache scrophulariifolia, Carex aggregata, C. eburnea, C. leavenworthii, C. lupulina, Crataegus calpodendron, C. succulenta, Fragaria vesca* var. *americana*
23	Worle Creek (East)	T83N R24W sec 16 w1/2; 42°00′00″N, 93°39′20″W	Tdf, mf, wf, wd, es; Pdr	*Actaea rubra, Arisaema dracontium, Brachyeletrum erectum, Coreopsis tripteris, Dichanthelium latifolium, Oryzopsis racemosa, Ribes cynosbati, Rubus idaeus* var. *strigosus*

Appendix C. Continued.

No.	Site Name	Location	Habitat Types	Rare and Infrequent Plant Species
24	Zumwalt Station City Park	T83N R24W sec 16; 41°59′40″N, 93°40′00″W	Tdf, mf, wd; Ops	*Carex hirtifolia, Fragaria vesca* var. *americana, Hypericum prolificum, Monotropa uniflora, Ribes cynosbati*

In my efforts with conservation regarding the Champlin Farm and Worle Creek corridor, I reached out to many people and organizations. The USDA commissioners had this to say via email...

My recommendation would be to recommend that she works with Story County Conservation and Iowa Natural Heritage Foundation. Because of studies proving the presence of rare species on the land, I think Christine has a case to work with those two organizations to purchase the land from the current owner and pursue permanent protection in the hands of Story County Conservation.

She should also get in contact with the DNR. Several of the amphibian, reptile, and bird species observed in the 2005 report have since been listed as Species of Greatest Conservation Concern under the updated Iowa Wildlife Action Plan. The wildlife and forestry divisions would probably be the most helpful.

I reached out to our local chapter of The Audubon Society, Big Bluestem Audubon. This was their response...

The board members all agreed that BBAS is willing to send an official letter of opposition to the City of Ames, based upon likely destruction of bird and other wildlife habitat, native plant life, and the natural stream, all occurring if the City's proposed project is to proceed.

Unfortunately, this was right when the pandemic was getting bad so I don't know if that actually happened. I reached out to my contact again but haven't heard back but I haven't been given much time to prepare before public comment is closed.

I reached out to several of the professors that were involved in the study to see what their thoughts were. These are some responses...

It has been a long time, probably the 1990's, since I walked Worle Creek. In my view Worle Creek is valuable given its rich cultural/archaeological history and the rare plant and animal records that Jimmie summarizes.

Ultimately, it comes down to quality of life for Ames citizens: do they value these increasingly scarce semi-natural areas as a place to retreat from busy professional and personal lives? Or are people so busy with what is going on in their work cubicles and on their computer screens that they have lost touch with such areas?

As someone who over the past 30 years has spent hundreds of hours exploring these scraps of semi-natural areas within the Ames city limits, I sincerely hope that the decision makers find reason not to proceed.

Bill (Dr. William Norris)

My only involvement with the area was as Chair of the ISU Outdoor Teaching Labs Committee, I insisted that the City (in preparing their future development plans in the 2-mile area surrounding the then-existing city limits) install a lift station rather than use a gravity fed system for their sanitary sewer. The latter system would have simply destroyed the creek and the woods along it as the sewer was installed. This was in the section through Curtiss Farm, which we had an interest in (both the constructed prairies and the woods along the stream). They dislike lift stations because they are expensive and require more maintenance. Cathy Brown agreed and, as I recall, the City put that in their speculative plans at the time. I have not seen what they intend to do now with the latest 2040 plan. I would think the University would still have interest in the area. Bill's reference to Cathy's report and his thesis are appropriate and good.

James Pease, Ph.D.
Emeritus Assoc. Professor, Natural Resource Ecology and Management, ISU
Environmental, Interpretive, and Wildlife Consulting

I am also including again a copy of the email that Lara Noldner, Bioarchaeology Director of the State Archaeologists, that she emailed to council on 04/22/2019...

Dear Ames City Council Members,

I understand that Christine Hausner has been in contact with you regarding her concerns for sensitive areas, including one recorded prehistoric burial site, on her family's property that could possibly be proposed for annexation in your Comprehensive Plan. Per the Iowa Code (Ch263B.7-9) the University of Iowa Office of the State Archaeologist is responsible for the protection of ancient human remains and burial sites (defined as over 150 years old) in the state, so we often consult on projects like this to assist planners and developers in the avoidance of unwanted impacts to known burial sites and areas where undocumented burial sites are possible. I made some calls to City Council members today to get more details on

the project you all are working on and spoke with Bronwyn. She let me know that your discussion at the City Council's meeting tomorrow will involve your Comprehensive Plan which you are developing in part to determine areas for future annexations around Ames.

Given Christine's concerns I have attached a report that our office produced in 2004 after archaeological survey for the Worle Creek Sanitary Sewer Extension. Please note that this report, especially ***archaeological site locations, are confidential and not for public disclosure.*** *You will see that documented on Linn Lloyd's property (Sections 17-18 T83N-R24W) are archaeological sites 13SR82 and 13SR73, as well as areas with high to moderate potential for additional cultural deposits (Figure 6 on pg 13) in the area surveyed. 13SR82 is a known prehistoric burial site, which per the Iowa Code (sections 523I.316.6 and 716.5) is protected from intentional disturbance, and was indicated for avoidance; basically, no ground disturbing activity can occur there. The report also recommends additional archaeological testing for future development in areas of high to moderate site potential prior to any further development.*

We are happy to consult further on your planning project and please feel free to contact me with any questions or concerns you might have. I will also mention that our office maintains the database of all known archaeological sites in Iowa and can provide site searches for any City projects that would help identify similar culturally sensitive areas as needed.

Lara K. Noldner, PhD
Bioarchaeology Director
Office of the State Archaeologist
University of Iowa

Since it is hard for you to see exactly what it would be that you are destroying by urban development by looking at it from the road, over a year ago, I strapped a GoPro to my forehead and went on a hike so I could show you exactly what we are talking about. One video is taken right from where the sewer line ends. It would have to be taken another 1/2-mile up to the Munson property in order to service the entire Champlin Farm area. In this video, I walked for about an hour and I only made it halfway so the video is only showing half of the way the sewer line would need to be taken. That is a 100-foot wide swath of habitat destroyed, including 100+-year-old oak trees, and unnaturally straightening the creek. The other video is showing you Worle Creek proper. This shows what habitat and creek you would destroy making it the sole storm sewer drainage system. So, destroying habitat to get the pipes in and then every piece of garbage, every chemical on someone's lawn, every oil patch in someone's driveway, all the salt from the streets would go directly in this creek. This creek is just NOW starting to recover from farm runoff. I have 1000-year-old artifacts from the end of my parents' driveway from Native Americans that would come from Mesquaki on the weekends in the summer to fish out of this creek. This is why we have a Native American burial site because someone passed away while camping here. This information was gathered from the Ames Historical Society. There are frogs, toads, turtles, and minnows, etc. I just had two herons fly over my head the other day that were down at the creek so it has life in it and it does provide. Imagine what this will do after making this a storm sewer. Please keep in mind that this was early spring so the videos do not do the tree canopy justice. Those videos can be found here....

https://www.youtube.com/channel/UCIBycfHHXNPhrcJ651-VJUA

With regards to endangered and protected species, the bull snake is an endangered species. Neighbors have seen them within the last year and my parents had a 6-foot-long one on their patio within the last six years. Wood ducks are on a protected list. If you go down to the creek in the spring, you will always kick one up. My dad had five of them sitting in his oak tree this past spring. We have several migratory birds that stop here and nest here. We also have a specific plant here that has never been found anywhere else in Story County.

I would like to revisit the fact that we are almost completely enveloped by over 4100 acres of ISU property...and counting. I am not sure if you are aware but the Bentley farm just south of us was purchased last year by ISU so that adds another roughly 100 acres to their total. We are by every definition a rural community. We have crop dust, tractors running, cows mooing, manure smells, and fertilizer and pesticides being sprayed. And now, because of the feed mill, we will have several trucks running daily with feed from the feed mill to the teaching farms on ISU property down State. At last count, I believe I had eight teaching farms within ¼ to ½-mile from the Champlin Farm and 15 total within a mile.

The consulting firm advised the city to stay away from this area...yet here we still are. Every expert that worked on this study, plant, animal, and archaeological, advised that you protect this area and to go elsewhere...yet here we still are. ISU only continues to grow and isn't going anywhere...yet here we still are. Kelly tells you that the utilities are "right there" but you need to be made aware of what that actually means because it isn't that simple. This study was done AFTER that sewer line was put in. I'm not a betting woman, but I would bet my house that if this study had been done PRIOR to that proposal, it never would have happened. In this political climate that focuses so much on global warming, carbon footprinting, climate change, and environmental protection, why would you move forward with this when the city even voted AGAINST it 15 years ago.

Fifteen years ago, the city thought SW Ames would be prime for development. They rolled the dice and put in an interchange on the highway, changed our designation from rural residential/ag to urban service area with regards to the fringe plan (without advising any homeowners in the area, by the way), and put in a sewer line off of State without doing any investigation into how it would impact the environment...and they guessed wrong. In 15 years, nothing has changed. The Champlin Farm sat on the market for five years and no developer was interested because it doesn't make sense. If you developed south of Highway 30 and spent millions upon millions for infrastructure and utilities, where else would you service? If you developed the Champlin Farm and spent millions upon millions to pave two roads that go nowhere and destroy the environment to get the utilities in, where else are you going to go because everything to the south and north is ISU property.

At the last city council meeting, Mr. Haila was kind enough to allow me to speak with extra time so I could go over all of my facts. The last thing that I said was that, if you develop the Champlin Farm, you still have ZERO possibility to expand anywhere else. Tim asked Kelly if I was wrong, and he said, no, she isn't wrong...yet here we still are. In order to become part of the city, per your own guidelines, the area has to check off certain boxes. It has to have continuity with the city, feasibility, marketability, and be cost effective. Nothing south of Highway 30, in my opinion, fills any of those boxes, and the Champlin Farm certainly does not, specifically with regards to the environmental concerns. There are rural subdivisions built inside the county all over Ames within the 2-mile fringe. Having county utilities and acreages would vastly decrease the impact on the environment. So why is it okay for other places to be able to build in that way that have ZERO environmental impact and a place like this that has experts telling you that there IS environmental impact isn't considered?

In my conservation efforts, I built somewhat of a rapport with Erin Brockovich and I have emailed her several times. She is completely supportive of our efforts. I am not just a girl whose heart is in it because I grew up here and my family has been here for 100 years. I'm still smart enough to know that none of this makes sense, not environmentally and not logistically. Unless you consider getting rid of ISU and their teaching farms and ag land, where will you go? They aren't going anywhere and that will never change. My dad's whole life it has always been, this is ISU's corner and we are just living in it and that is the absolute truth.

I met with one of the professors that was part of the study and I asked if they would give me a quote that I could include in my letter and they said that they didn't feel comfortable because of their position with ISU which I completely respect. But what they said was, a quote from me isn't going to make any difference because the study should stand on its own merit. You would think that, right? Yet here we still here. If you don't follow the recommendations of every expert involved with this study, as well as others that weren't, to protect this area and not destroy it with urban development, then at the very least go with their second recommendation which is to have further studies done on the property, and even the entire Worle Creek corridor, at different times of the year to get the full extent of what this ecosystem has before making a decision such as these, especially since many of these plant and animal species in all likelihood have become listed as higher priority since this study was done. That is the very least you can do to make an educated decision.

The city rolled the dice on several things and they guessed wrong. The people that live here and this environment shouldn't be punished because of that. The city made a mistake. And once again, that sewer line isn't just "right there" and it never would have happened if that study had been done first. Kelly was quoted in the paper saying that he could put 300 houses on roughly 80 acres of the Champlin Farm and still be environmentally conscious. I can say with absolute certainty that that is not only an IMPROBABILITY, but it is an IMPOSSIBILITY. Not often are we given the opportunity to right a wrong and you have that opportunity to do that now. The Champlin Farm should be designated as open space and environmentally sensitive and it should be left under the county's jurisdiction. And as to SW Ames and south of Highway 30, you really want to spend all of that money to go...where? Because in the end, we are still all going to be surrounded by 4100+ acres of ISU property and that will never change. If the city has a table for the Champlin Farm entitled Amenable for Urban Development and I have a table for the Champlin Farm entitled Not Amenable for Urban Development, the fact remains that I can check off a whole lot more boxes on my table than you can. We only get one Earth. We can't trade it in for a new one and start all over again. Please do the right thing. Thank you for your time and consideration.

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Lessons From an Inventory of the Ames, Iowa, Flora (1859-2000)

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Lessons From an Inventory of the Ames, Iowa, Flora (1859–2000)

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A botanical survey of the vascular flora of the "planning and zoning jurisdiction" of the city of Ames, Iowa (i.e., the area within a boundary 3.2 km beyond the current city limits) was compiled from 1990 to 2000. During this survey, 916 taxa (71% native) were encountered within this boundary. Literature reviews and a survey of Iowa State University's Ada Hayden Herbarium for specimens that had been collected in Ames since 1859 add 204 taxa to the flora. This total of 1,120 taxa exceeds the number of taxa known from any comparable area (including counties) in Iowa. We produced a checklist including date of first record, origin, abundance and habitat codes for all species that were noted during the current survey. Information for historic records includes source and, if based on a herbarium voucher, dates of first and most recent collections. This study reports 58 taxa that are not included in Eilers and Roosa's (1994) checklist of the Iowa vascular flora; 28 species currently or historically known from Ames are included in the 1994 Iowa Department of Natural Resources list of endangered, threatened or special concern species. Two species on the federal list of threatened plant species, *Lespedeza leptostachya* (native) and *Boltonia decurrens* (naturalized), are also found within the study area. An outline of previous studies of the Ames flora is presented. Sites containing notable plant assemblages in the survey area ate mapped and described.

The results of the survey provide both an enhanced general knowledge of the state's flora and an example of local analysis of floristic change. These results are also relevant to conservation efforts, such as habitat restoration and reconstruction, and in evaluating the conservation status of the vascular plant species in the state. This inventory highlights the need for similar, intensive studies of the flora elsewhere in Iowa. The compilation of the historical data for such studies could be greatly aided by the development of computerized catalogs of the state's herbaria.

INDEX DESCRIPTORS: Iowa flora, plant communities, floristic survey, urban flora, Story County, conservation, threatened and endangered species.

The vascular flora of Ames, Iowa, has received considerable attention from professional and amateur botanists since the middle of the nineteenth century. One period of extensive study occurred prior to 1900 and culminated with several published reports describing the flora in and around this city (Bessey 1871, Hitchcock 1890, Pammel 1898). The past vegetation of Ames (1859–1989) has also been documented by more than 4000 voucher specimens deposited in the Ada Hayden Herbarium (ISC) at Iowa State University. More recently (1990–2000), we conducted a second major inventory of the Ames flora, which resulted in the addition of many new plant species to the checklist. We suspect that the flora of no other comparable area in Iowa (i.e., county, state preserve, state park, etc.) has been as thoroughly studied as this one.

In this paper, we begin with a review of past botanical studies of the Ames flora. Then, we present a checklist of this flora as documented by past researchers and ourselves. Although the natural vegetation of Ames has been drastically altered by human pressures since the time of European settlement, we discovered 916 vascular plant taxa in or near Ames during our recent (1990–2000) inventory. Addition of historical records to this checklist elevates this total to 1,120 plant taxa, more taxa than are known from any Iowa county. These findings suggest that we still have much to learn about the Iowa flora.

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THE STUDY AREA

Ames (1995 population: 48,691) is located in Story County in central Iowa. The boundary of the current plant inventory (Fig. 1) represents a 3.2 km (=2 mi) extension of the Ames city limits, which corresponds to the city's planning and zoning jurisdiction. The area lies within the following coordinates: 41°57′40″N to 42°05′30″N latitude and 93°31′40″W to 93°43′30″W longitude. Most of the area thus circumscribed (23,700 ha = 58,560 ac) lies within Story County; however, a very small portion to the west extends into Boone County.

Formerly, most of Story County was covered by prairie vegetation (Anderson 1996), but today the majority of this land area has been converted to crop fields. Nevertheless, several remnants of prairie vegetation still exist in the study area. Significant tracts of forest vegetation also occur in Ames, most in association with streams and rivers. Ames forests belong to the Central Hardwoods Forest Region (Braun 1964) and are dominated primarily by oak (*Quercus*) species. Wetland habitats, which were more common in Ames at the time

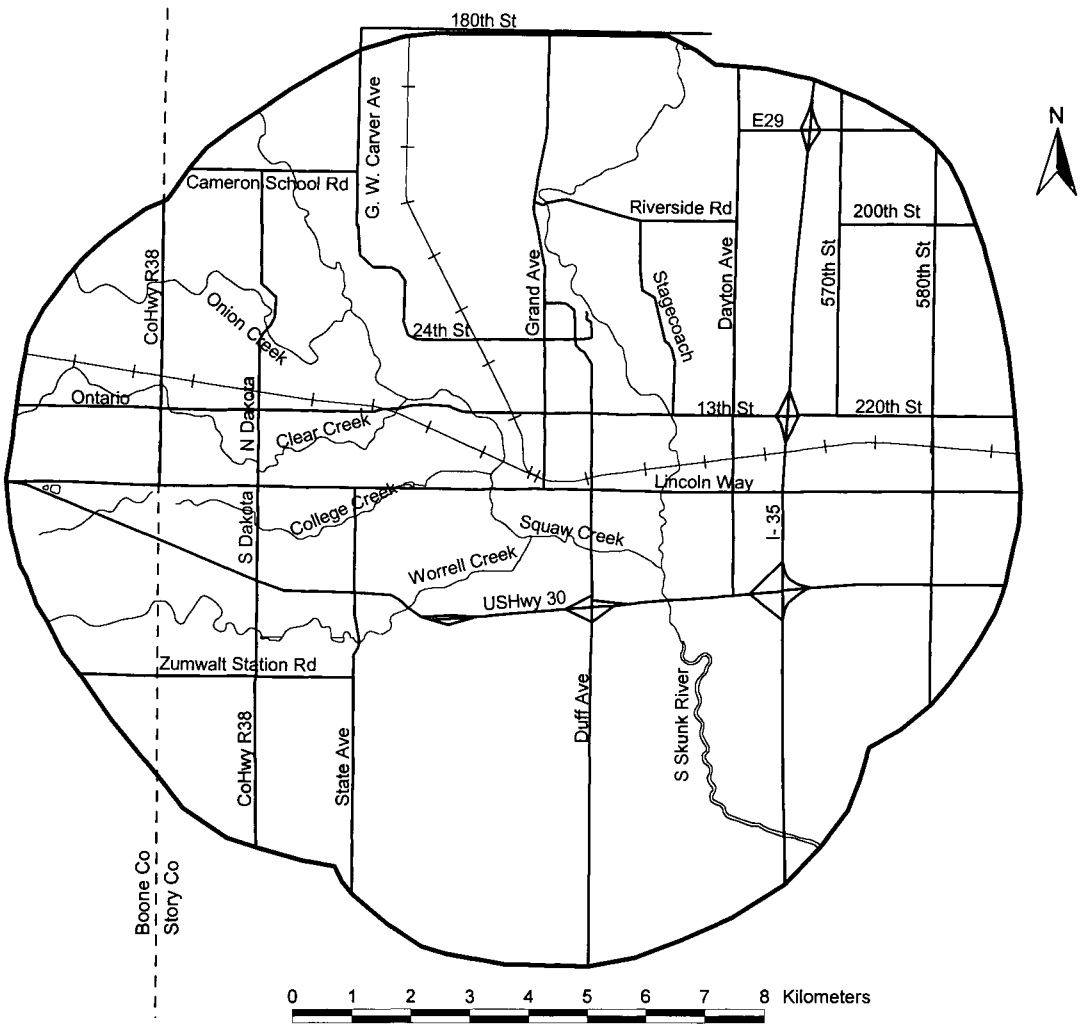

Fig. 1. Map of the current survey area—Ames, Iowa.

of settlement by Europeans (Anderson 1996), are currently restricted to only a few tracts within the boundary of this inventory. Detailed descriptions of many of these natural habitats in Ames are given by Norris and Farrar (1999).

Many vascular plants in Ames commonly occur in areas subject to frequent human disturbance. These include construction sites, railroad and road rights-of-way, old fields, crop fields, sidewalks, residential lawns and waste treatment areas. A large number, but by no means all, of the plant species typical of these sites have been introduced from outside of Iowa. Although these anthropogenic habitats are not usually the focus of floristic studies in the Midwest (but see Swink and Wilhelm 1994), they comprise a majority of the land area in Ames. Therefore, we thoroughly surveyed a large variety of disturbed sites in Ames for plant species during this inventory.

PAST STUDIES OF THE AMES FLORA (to 1989)

Although a few herbarium specimens collected in Ames prior to 1870 have been preserved, concerted study of the flora was initiated that year with the arrival of Charles Bessey. Bessey founded the Iowa Agricultural College Herbarium soon after his arrival and began collecting specimens of the local flora. His annual report of the Botany Department to the college administration for 1871 included an appendix entitled "Contributions to the Flora of Iowa" (Bessey 1871). It listed 588 taxa, most (452, 77%) of which were cited as occurring in Ames. According to unpublished reports (Parks Library Special Collections Department, Iowa State University), the students in Bessey's first-year botany course were required to collect and identify a minimum of 100 species. Some students chose to mount their specimens in bound volumes (exsiccatae) and personally retained their collections, but others were mounted and added to the herbarium. This resulted in rapid growth of the herbarium, so that within Bessey's first year at the college, the herbarium had grown to ca. 2,500 specimens, most from the Ames vicinity.

The rate of collecting and adding specimens to the herbarium grew during the 1870s and 1880s (see Fig. 2). The species list resulting from the 132 Ames collections of Vene Gambell, one of Bessey's students in the early 1880s, was posthumously reported by Lindly (1911). But Albert Hitchcock, another of Bessey's students and subsequently a staff member of the college in the 1880s (Isely 1994), developed an even more active interest in the Ames flora. He prepared a checklist of the flora of the Ames area, comprising ca. 700 taxa (Hitchcock 1890). The Ames specimens still in the her-

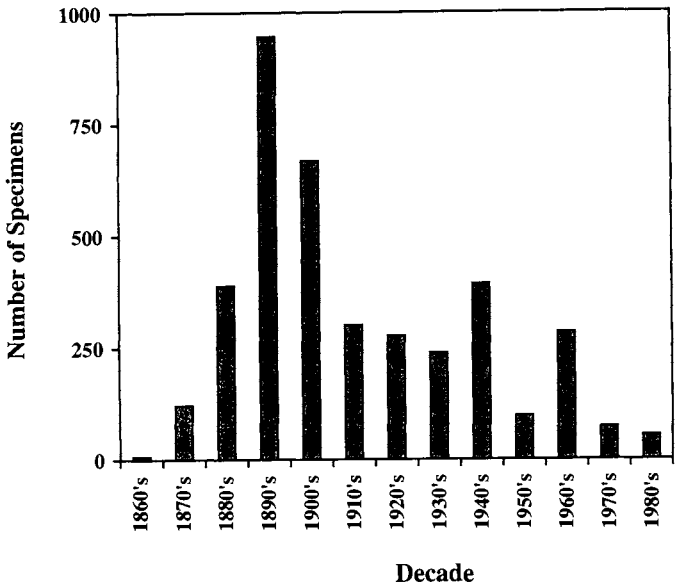

Fig. 2. Graph indicating the number of plant specimens collected in Ames, Iowa, 1860–1989 (by decade).

barium and Hitchcock's (1890) publication have provided us with an excellent opportunity to compare the current flora with that of the past.

In 1889, Louis Pammel was named to head the College's Botany Department, at about the same time as Hitchcock's departure from the state. Pammel's own collecting and that of his students would add greatly to the herbarium during the next 40 years. In our 1999 survey of the herbarium, we found approximately 4,200 specimens from Ames. Of that total, approximately one-third had been added by 1900, and 607 specimens, far more than from any other collector, had been made by Pammel. Pammel's active collecting and his research interests resulted in publications on the flora of Story County (Pammel 1898) and a survey of the weeds of Story County (Pammel and King 1914). Pohl's (1985) biography of Pammel detailed his work and interests.

Three of the next four highest numbers of specimens collected in Ames were made by his students: Ada Hayden (1901–1943; 476 specimens), Jacob Anderson (1913, 1942–43; 232 specimens), and George Washington Carver (1892–1897; 171 specimens). Hayden was curator of the herbarium from 1934 to 1950 and was one of the founders of Iowa's state preserve system (Isely 1989). Anderson is primarily known for his floristic studies of the Alaskan flora; however, following his return to Ames, he collected plants in the vicinity of the college campus (Isely 1954). Carver received his bachelor's and master's degrees at Iowa Agricultural College (now Iowa State University) and was on the college staff before his appointment at Tuskegee University (McMurry 1981).

Hitchcock's known collections ranked fourth on the list at 188. However, Hitchcock (1890) stated that all of the nearly 700 names on his published list were based on specimens in his personal herbarium, with only a few having been deposited in the college herbarium. Figure 2 clearly shows the increase of activity in collecting herbarium specimens during Pammel's tenure, the maintenance of fairly high numbers until 1950 (the year of Hayden's death), and the subsequent decline in more recent decades.

Ames collections from 1950 to 1989 were sporadic, comprising barely 15% of the more than 4,200 specimens found in our herbarium survey. We hypothesize that this decline in local collecting was due to several factors, including changing floristic and taxonomic interests, with a decreased emphasis on the local flora, and a general shift from field- to laboratory-oriented studies (Lewis 1998). Duane Isely and Richard Pohl both joined the Iowa State College Botany Department faculty in the 1940s. Each had a primary focus on a single plant family: Isely's research was on the Fabaceae (s.l.) of the United States, and Pohl's research was on the Poaceae of the United States and eventually the Neotropics. Generally, the research projects of their graduate students followed suit, with the exception of Paul Monson's (1959) floristic study of the area encompassing Iowa's Des Moines Lobe of the Wisconsinan glaciation (Prior 1991). Occasionally, local projects also captured the secondary research interests of these students, e.g., Robert Freckmann's (1968) study of the prairies in the Ames area.

Although providing a baseline for general comparisons, it would be misleading to imply that the 1999 herbarium survey provides a comprehensive record of past collections made in Ames. Catastrophic events, including a rornado (1882) and fire (1900), damaged the buildings that were home to the herbarium and damaged or destroyed part of the holdings. Some collections were also damaged by insects, water, and other environmental problems due to the early use of wooden cabinets that could not be adequately sealed. It is unknown whether such factors resulted in actual destruction or deaccession of specimens, and if so, to what degree. Loss of specimens in loan shipments may also have occurred. Misidentification of specimens, illegibility of label data, scant locality information, and misinterpretation of the information are other factors that may affect the accuracy of data compiled in our survey. The published accounts (Bessey 1871, Hitchcock 1890) and herbarium specimens (ISC) that document the historic Ames flora offered the additional challenges of changes in taxonomic and nomenclatural concepts during the intervening years, of relocation of cited localities, and of an incomplete set of specimens to document Hitchcock's study. Despite these problems, the efforts of Hitchcock and other early researchers of the Ames flora have given us a fascinating glimpse of the dynamics of the Ames flora during the past 141 years.

METHODS

Field Work

An inventory and evaluation of Ames, Iowa, natural areas were initiated in 1991 by the Ames City Planning Office (Norris 1994, Norris 1995, Norris and Farrar 1999). The purpose of this inventory was to identify and rate the natural quality of all forests, prairies and wetlands in the study area. The boundary of this inventory was established in 1991 as a two-mile (3.2 km) extension of the Ames corporate limits (Fig. 1), which encloses an area corresponding to the zoning jurisdiction of the Ames City Planning Office. W.R. Norris conducted field work for this inventory between 1991 and 1995, ptimarily in forest, prairie and wetland habitats. He summarized his findings in a report submitted to the City of Ames in 1994 (Norris 1994). This report consisted of maps and written descriptions of all surveyed areas.

Although not a goal of the initial inventory, Norris compiled lists of all vascular plant taxa encountered during his surveys of Ames forests, prairies and wetlands (Norris 1995). This list of 493 taxa observed between 1991 and 1995 was based on sight observations of numerous common plant species as well as field collections of difficult-to-identify taxa (e.g., grasses, sedges, rushes, smartweeds, asters, goldenrods, sunflowers, etc.).

Norris and D.Q. Lewis (curator, ISC) conducted additional field work in 1996 and 1997 to further document the Ames flora. They expanded the realm of the initial survey (i.e., forests, prairies and wetlands) to include open and disturbed habitats including riparian

Table 1. Codes used to describe preferred habitats of vascular plants in Ames, Iowa.

1) T (tree-dominated habitats)	
df	dry forest—typically on ridgetops and on south- and west-facing slopes
mf	moist forest—typically on north- and east-facing slopes
wf	wet forest—typically in bottomlands
wd	woodland—tree-dominated habitats with incomplete canopy closure
es	escarpment—due to erosion or soil slumping
ed	edge
2) P (prairie habitats)	
dr	dry prairie
ms	moist prairie
wt	wet prairie—includes 'wet meadow' vegetation from some wetland classification systems
3) W (wetland habitats)	
ez	emergent zone—typically dominated by bulrush, bur-reed and several deep- to shallow-water sedge species
sz	submergent zone—typically dominated by pondweeds and duckweeds
rp	riparian—includes grassy stream edges and sandbars
md	mudflat—not associated with running water
sp	seep
4) O (open habitats—primarily anthropogenic)	
ur	urban—sidewalks, lawns, etc.
cr	cropfields, gardens, flowerbeds
rw	rights-of-way, including fencerows, railroad embankments and powerlines
rc	rocky habitats, including railroad ballast, gravel pits and sand
of	old field, hayfield
ps	pasture

areas, seeps, mudflats, roadsides, old fields, agricultural fields, construction sites and railroad rights-of-way. R.O. Pope and M. P. Widrlechner joined the project in late 1997 and contributed additional plant records based on their observations of the Ames flora since 1990. A final collaborator, J.D. Thompson, joined this effort in June 1998. Extensive field work by all of us resulted in the discovery of an additional ca. 400 plant taxa between 1996 and 2000.

Our field work resulted in the collection of over 1,500 voucher specimens to document the Ames flora in the past decade. These have been submitted for deposit in the Ada Hayden Herbarium (ISC) at Iowa State University.

Species Historically Reported from Ames

In early 1998, Norris and Lewis conducted an exhaustive inventory of the Iowa collections in the Ada Hayden Herbarium and developed a computer database of all (approximately 4,200) Ames voucher specimens deposited there. We analyzed this database to develop a list of "historic species" not observed by us during the current inventory but documented to have occurred in Ames between 1859 and 1989. We supplemented this list with additional plant species reported by C. E. Bessey (1871) and A. S. Hitchcock (1890). These efforts provided a valuable target list of taxa to help focus our field work during the last two years of this inventory.

Compilation of the Checklist

We compiled a comprehensive checklist of all vascular plant taxa documented to have occurred in Ames between 1859 and 2000. Nomenclature for all plant taxa previously reported in Iowa follows Eilers and Roosa (1994) except for *Rubus* L., which follows Widrlechner (1998). Nomenclature for plant species previously unreported in Iowa follows Gleason and Cronquisr (1991), the Great Plains Flora Association (1986), and/or Swink and Wilhelm (1994), with a few exceptions (e.g., *Digitaria bicornis* (Lam.) R.& S., *Poa pratensis* subsp. *angustifolia* (L.) Lej.) in which "expert determinations" were followed.

Modern species. To compile a checklist of Ames plants (1859 to mid-2000), we first listed all native or naturalized plant taxa encountered by us during our field work in the past decade. Crop species with no tendency to persist (e.g., *Zea mays* L.) and ornamental species not demonstrated to spread from their point of introduction (e.g., *Syringa vulgaris* L.) were excluded from the checklist.

We indicated the status of both modern and historic taxa as either native (no symbol), exotic (*) or native to Iowa but probably introduced in Ames (+). The latter category contains species that have spread from their point of introduction in lawns (e.g., *Buchloe dactyloides* (Nutt.) Engelm.), gardens and prairie restorations/reconsttuctions (e.g., *Echinacea purpurea* (L.) Moench, *Gaillardia pulchella* Fouq., *Ratibida columnifera* (Nutt.) Wooten & Standley), woodland understory restorations (e.g., *Trillium nivale* Riddell), and wildlife or windbreak plantings (e.g., *Physocarpus opulifolius* (L.) Maxim.). This category also encompasses two taxa (*Erythronium americanum* Ker-Gawl, *Napaea dioica* L.) encountered by us during the current inventory whose occurrences in central Iowa are disjunct from known eastern Iowa populations (Eilers and Roosa 1994) and are thus difficult to explain.

In the checklist, we also provided information about the habitat preferences in the Ames area of each plant observed by us during the current inventory. We established habitat codes within four main categories: tree-dominated (T), prairie (P), wetland (W) and open (O); the latter category represents sites primarily associated with human activity. Within each of these main categories, we recognized several subcategories (Table 1). The habitat codes in the checklist represent a consensus of results after we had independently assigned codes to each taxon.

We also assigned an abundance code (common, frequent, infre-

quent, rare) in the Ames area to each plant species found by us in the current survey. Definitions for these codes were borrowed (with slight modifications) from Eilers and Roosa (1994):

Common: widely distributed and often found growing in large quantities in several different habitats.

Frequent: widespread but not abundant and usually found in only one type of habitat.

Infrequent: not widespread and often not found in places where it might be expected to occur.

Rare: found in only one or a few places.

As with assignment of habitat codes, the abundance codes presented in the checklist represent a consensus of results after we independently assigned codes to the taxa.

Historic species. We supplemented the list of our own findings with historic species documented from herbarium specimens (ISC). Before including such taxa, we reexamined at least two specimens (when available) of each species to verify the identification. When we could not verify the identification of a particular species (e.g., *Cuscuta corylii* Engelm.) due to the fragmentary nature of the voucher specimen, we assigned that species to a separate list of "excluded records and observations." Likewise, crop and ornamental species (e.g., *Syringa vulgaris* L., *Zea mays* L.) collected in Ames prior to 1990 were excluded unless label information on voucher specimens provided compelling evidence that the species had in fact escaped cultivation and persisted for a number of years.

A problem with inclusion of historic species from herbarium voucher specimens is uncertain knowledge of collection sites in relation to our inventory boundaries. For example, of the approximately 4,200 voucher specimens collected in Ames prior to 1990, well over half state the place of collection as "Ames" with no further information. We included species reported to be collected in "Ames" on the checklist unless their occurrence in central Iowa is implausible (e.g., *Arabis lyrata* L.) based on current knowledge of plant species distributions (Eilers and Roosa 1994).

We also included historic species reported from two published floras (Bessey 1871, Hitchcock 1890) on the checklist. Here, a daunting task was to uncover synonymies between nomenclature used by Bessey and Hitchcock and modern plant names. We resolved many synonymies by consulting older editions of standard botanical reference books (e.g., Gray et al. 1890, Britton 1901, Robinson and Fernald 1908, Fernald 1950), regional floras and state checklists (Gleason and Cronquist 1991, Eilers and Roosa 1994, Steyermark 1963, Voss 1972, 1985, 1996), taxonomic treatments of specific plant families and genera (Gilly 1946, Hitchcock 1971) and the "Tropicos" database of the Missouri Botanical Garden (W^{3}Tropicos 2000). Very rarely, we associated a published name with several modern taxa (e.g., "*Ampelopsis quinquefolia* (L.) Michx." = *Parthenocissus quinquefolia* (L.) Planchon and *P. vitacea* (Knerr) A.S. Hitchcock). A number of plant names (e.g., *Rubus villosa* Ait.) remained unresolved to the end; we assigned such species to the excluded list. At least once we assigned a current name, *Polygonum amphibium* L. of Hitchcock (1890), to the excluded list because we could not determine which modern variety (i.e., *P. amphibium* L. var. *emersum* Michx. or *P. amphibium* L. var. *stipulaceum* (Coleman) Fern.) the author intended.

We were also careful to exclude species listed by Bessey and Hitchcock when they left doubt that a particular taxon actually occurred in Ames. Bessey (1871) did not formally define the boundaries of his inventory of the Ames flora, giving "Ames" as the location for most plants with no further description. In a few instances (e.g., "*Camptosorus rhizophyllus* Link.", "*Polypodium vulgare* L.") he reported plants as occurring in Ames in the vicinity of the Des Moines River. We assigned Bessey's reports of such plants to the excluded list because this river is situated more than 16 km west of Ames.

Hitchcock (1890), on the other hand, carefully defined the boundaries of his own inventory work as:

> "... region [in] the vicinity of the Agricultural College at Ames. Quite thorough explorations have been made within a radius of three to four miles about this point. From four to nine miles they have been confined to certain directions; viz., along the railroad from Ames to Gilbert, and from Ames to Nevada; southwest to the 'Big prairie,' and southeast to a small 'lake' about ten miles from the College. A few plants have been included from the Des Moines river west of Boone, eighteen miles distant; several have also been included from Cairo lake and vicinity, about twenty-two miles away. But in all cases it is so stated if the plant has been found only beyond the three-mile circle."

Thus, we assigned all species (e.g., *Aesculus glabra* Willd., *Rumex maritimus* L.) reported by Hitchcock to occur only at Cairo Lake, Big Prairie, etc., to the list of excluded records and observations.

RESULTS

We discovered 916 plant taxa in the study area during the 1990s to mid-2000 (Table 2, Appendix A). The occurrences of almost all (908) of the above taxa in Ames are documented by at least one herbarium voucher specimen collected in Ames since 1859 (ISC). We observed that these taxa occur in a variety of generalized habitat types (Table 3) and also vary in their abundance in the study area (Table 4); the more specific habitat and abundance codes for each of these taxa are found in Appendix A.

We also report 151 historic taxa documented by herbarium voucher specimens and 53 from the two published floras (Bessey 1871, Hitchcock 1890) which occurred in Ames prior to 1990. The grand total, then, is 1,120 taxa; these data from the currently known and historic taxa are summarized in Table 2. Table 2 also contains the listings of numbers of taxa in the largest families and genera found in the survey area. For reasons mentioned in our Methods, we excluded over 100 historic records and current observations (Appendix B) from the official checklist of Ames vascular plants.

[Note: We observed five additional species just outside the inventory boundary in the last decade: *Cephalanthus occidentalis* L., *Cyperus schweinitzii* Torrey, *Elodea canadensis* Michx., *Lobelia cardinalis* L. and *Polygonum hydropiperoides* Michx.]

Significant plant assemblages in Ames are described and mapped in Appendix C and Figure 3.

DISCUSSION

A major result of this study is our discovery that about 1,120 plant taxa have probably resided (at least temporarily) in Ames since 1859. This total exceeds the number of plant taxa reported from the 17 Iowa *counties* inventoried since 1950 (Table 5). How was it possible to discover so many plant species in Ames? This result is due in large part to the intense study this flora has received from botanists who have worked and/or studied at Iowa State University in Ames (described previously). These findings are also due in large part to our "team" approach, which permitted us to draw upon the individual expertise of each team member. In particular, our study benefited from expertise in Scrophulariaceae (Lewis), graminoids (Norris), agricultural weed species (Pope) and woody plants (Widrlechner).

Another contributing factor to our success in finding plant taxa was the long duration (ten years) of this inventory. In contrast, primary field work for many recent county inventories (e.g., Peck et al. 1978, 1980, 1981, 1984) was conducted over one or two field seasons. During the last two full years of the current inventory (1998

Table 2. Floristic composition of the Ames, Iowa, survey area.

A. Species, genera and families in the Ames flora

Major Groups	Species (+Hybrids/ Subspecific Taxa)	Genera	Families
Pteridophytes	14 (2)	11	6
Gymnosperms	2	2	2
Dicotyledons	772 (17)	357	82
Monocotyledons	303 (10)	115	19
Total	1,091 (29)	485	109

B. Current and historic taxa

Origin	Current	Historic	Total	%
Native to Ames	652	158	810	72.3
Elsewhere in IA	15	0	15	1.3
Non-native	249	46	295	26.4
Total	916	204	1,120	100

C. Ten largest families

Family	Native	Elsewhere in Iowa	Non-Native	Total (Hybrid)
Poaceae	95	1	53	149 (2)
Asteraceae	110	3	35	148 (2)
Cyperaceae	78	0	0	78 (1)
Fabaceae	33	1	16	50 (0)
Brassicaceae	16	0	33	49 (0)
Rosaceae	35	1	11	47 (0)
Lamiaceae	25	0	8	33 (1)
Ranunculaceae	25	0	3	28 (0)
Liliaceae	17	2	6	25 (0)
Scrophulariaceae	17	1	7	25 (0)

D. Ten largest genera

Family	Native	Elsewhere in Iowa	Non-Native	Total (Hybrid)
Carex	54	0	0	54 (1)
Aster	19	0	0	19 (2)
Polygonum	11	0	5	16 (0)
Viola	10	1	2	13 (1)
Chenopodium	7	0	5	12 (0)
Euphorbia	9	0	3	12 (0)
Verbena	11	0	0	11 (5)
Cyperus	10	0	0	10 (0)
Dichanthelium	10	0	0	10 (0)
Muhlenbergia	10	0	0	10 (0)

Table 3. Habitats of the Ames, Iowa, flora.

Habitat Type	No. of Taxa	%
Tree-dominated	385	42
Prairie	270	29
Wetland	171	19
Open	440	48
More than one type	289	32

Table 4. Abundance of the Ames, Iowa, flora.

Abundance	No. of Taxa	%
Rare	323	35
Infrequent	196	21
Frequent	194	21
Common	203	22

and 1999), Thompson devoted approximately 40 hours per week to field work for this inventory during the growing season and personally discovered more than 200 new plant species in Ames through his intense survey efforts. We conclude that plant inventories conducted over a 1–2 year period in regions as large or larger than Ames are probably not complete.

Finally, several facilities in Ames associated with Iowa State University have probably served as special sources of introduced, now naturalized, plant species, which expanded our total species count. These include the North Central Regional Plant Introduction Station, the ISU Horticulture Farm and the ISU Campus. Furthermore, the Hillculture Research Station (SCS) may also have contributed additional exotic plant species during the 1930s and 1940s (Widrlechner and Rabeler 1991).

The checklist includes 204 species documented by herbarium specimens and/or reported in past studies of the Ames flora that were not found in our current inventory. Although we feel we were conservative in including these species, our level of confidence in these additions is not as high as for those encountered in the current survey. The species documented by herbarium vouchers are more definitive than those in literature reports. However, especially for 19th century collections, the locality was often cited only as "Ames"; thus we had to assume that the collection was from within the project boundary. Confirmation of the accuracy of the identification of species listed in Bessey's (1871) and Hitchcock's (1890) lists that are not vouchered at ISC is also problematic. However, these species, if not excluded through objective criteria presented in the Methods, help provide insights into the Ames flora of more than a century ago.

Applications of Floristics

There is a general perception that research focused on floristics is no longer in vogue (Lewis 1998, Weber and Wittmann 1992). This paper presents results and analyses in support of an opposing viewpoint; namely, that field-based botanical research remains relevant. Although the Ames flora *per se* is probably not of interest to all botanists, we offer this study as a model to demonstrate how floristic studies can be the focus of interesting academic discussions as well as the foundation of sound conservation practices. Below, we provide some examples to illustrate several analyses of the Ames flora, as well as applications of this study in natural resource management.

Phytogeographic Origins of the Ames Flora. Eilers and Roosa (1994) stated that the Iowa flora has affinities with eastern deciduous forests, boreal forests, Great Plains prairies and Ozarkian (oak-hickory) forests due to its mid-continental location. To illustrate this point, they provided lists of plant species found in Iowa that are representative of these vegetation assemblages. We conclude that the Ames flora has a strong Ozarkian component because 68 of the 76 Iowa plant species considered to be representative of oak-hickory forests occur in Ames. In contrast, only three (*Coeloglossum viride* (L.) Hartman var. *virescens* (Muhl. ex Willd.) Luer, *Liparis loeselii* (L.) L.C. Rich., *Oryzopsis racemosa* (Smith) Ricker) of 44 Iowa taxa listed as having boreal affinities are known from Ames. Likewise, we documented the oc-

Table 5. Number of taxa in published floras and checklists of Iowa counties completed since 1950 and the Ames checklist (current).

Location (County unless specified)	Author & Year	Total Taxa	Based on[a]
Ames (city zoning jurisdiction)	Current study	1,120	Field, herb. (ISC), lit.
Allamakee	Peck et al. 1980	1,040	Field, herb., lit. (Hartley 1966)
Emmet	Wolden 1956	1,013	Field, lit.
Johnson	Thorne 1955	966	Field, herb., lit. as verified
Lee	Peck et al. 1981	876	Field, herb., lit. as verified
Des Moines	Lammers 1983	809	Field, herb.
Dickinson	Grant 1950, 1953	800	Lit., herb. (ILH), some field
Cedar	Fay 1951, Fay and Thorne 1953	775	Mainly field, some herb.
Guthrie	Roosa et al. 1991	748	Field, herb., lit.
Page	Wilson 1992	746	Mainly field
Poweshiek	Russell 1956	699	Mainly herb. (GRI)
Iowa	Easterly 1951	679	Mainly field, some herb., lit.
Washington	Wagenknecht 1954	677	Mainly field
Lyon	Peck et al. 1984	561	Field, herb., lit. as verified
Fremont	Peck et al. 1978	550	Field, lit., some herb.
Sioux	Peck et al. 1984	506	Field, herb., lit. as verified
Cherokee	Carter 1962	401	Field

[a] Source of information used to compile checklist as stated or implied in paper. Field = field work; herb. = herbarium voucher specimens (with herbarium acronym if primarily from one herbarium); lit. = literature sources; as verified = only including records from literature if verified by voucher specimens. Herbarium acronyms cited: ISC = Ada Hayden Herbarium, Iowa State University; ILH = Iowa Lakeside Laboratory Herbarium; GRI = Grinnell College Herbarium.

attempts to update the Iowa threatened, endangered and special concern lists of vascular plants (i.e., the Iowa "T&E" list; Iowa Administrative Code 1994) were hampered by a general lack of knowledge among botanists about many species in the state (Pearson 1999). Our checklist provides habitat and abundance information for 916 vascular plant taxa (more than 40% of the state's known vascular flora) in central Iowa and will thus be a valuable resource to individuals attempting future revisions of the Iowa T&E list.

In addition to the potential uses of the data, the findings of this study have already contributed to the conservation efforts within the survey area. It was noted during the survey that the Raymond-Rolling Prairie (Appendix C), containing a population of *Lespedeza leptostachya* (prairie bush-clover, federally listed as threatened), was being encroached upon by *Juniperus virginiana* L. (red cedar) and *Gleditsia triacanthos* L. (honey-locust) trees. More than 50 local volunteers soon became involved in active management of the site. The prairie and the bush-clover population have responded well to this intervention.

CONCLUSIONS

We do not contend that the flora of Ames, Iowa, is especially remarkable; in fact, we suspect that the floras of many Iowa counties are more diverse than this one. Therefore, a major lesson of this investigation is that additional field botanical work is needed to more thoroughly document the Iowa flora. Such efforts would undoubtedly result in the discovery of hundreds of new county records throughout the state. Furthermore, these efforts would probably reveal many plant taxa new to the Iowa checklist of vascular plants (Eilers and Roosa 1994).

This study also stresses the significance of an inventory occurring over an extended number of years in comparison to most surveys. This approach allows not only the accumulation of a large number of hours spent in field study, but also increases the likelihood for observing the impact of climatic fluctuations (such as the higher than average rainfall during the summer of 1993 or the lower than usual rainfall in the spring and early summer of 2000) on the vegetation.

A less obvious but equally important lesson of this plant inventory is the need for a computer database to compile information about voucher specimens deposited in Iowa herbaria. Our search of the Iowa holdings in the Ada Hayden Herbarium (ISC) for plant specimens collected in Ames required more than 160 hours to complete. Nevertheless, this database of Ames voucher specimens has already become obsolete with the submission of new plant specimens to the herbarium. Researchers wishing to repeat this study a century from now would benefit greatly from a continuously maintained database of all Iowa voucher specimens deposited in herbaria throughout the state. Such a database would be especially valuable to organizations and government agencies (The Nature Conservancy, Iowa Department of Natural Resources, etc.) whose mission is the management and preservation of rare plant habitat in Iowa.

In summary, we hope that this study convinces Iowa botanists, conservationists and funding agencies that it is time to revive field botanical research in this state.

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Table 6. Vascular plant species encountered during inventory of the Ames flora (1859–2000) that are listed as Endangered (E), Threatened (T) or of Special Concern (SC) by the Iowa Department of Natural Resources (Iowa Administrative Code 1994). B = Bessey (1871); H = Hitchcock (1890); I = specimen collected prior to 1990 held in the Ada Hayden Herbarium (ISC); C = encountered during current study (1990–2000).

Aster pubentior Cronq. [H, I] SC
Carex aggregata Mack. [C] SC
Carex crawei Dewey [C] SC
Chenopodium foggii H.A. Wahl [I] SC
Chenopodium missouriensis Aellen [I] SC
Chenopodium rubrum L. [I] SC
Cirsium hillii (Canby) Fern. [I, C] SC
Cypripedium candidum Muhl. ex Willd. [H, I] SC
Cypripedium reginae Walter [H, I] T
Dalea villosa (Nutt.) Sprengel [H] E
Eriophorum angustifolium Honck. [B, H] SC
Erythronium americanum Ker Gawler [C] T
Euphorbia missurica Raf. [H, I] SC
Lespedeza leptostachya Engelm. [H, C] T
Malaxis unifolia Michx. [I] SC
Muhlenbergia asperifolia (Nees & Meyer) L. Parodi [C] SC
Napaea dioica L. [C] SC
Penstemon tubaeflorus Nutt. [I] SC
Platanthera hookeri (Torr. ex Gray) Lindley [H, I] T
Platanthera hyperborea (L.) R. Br. [H, I] T
Platanthera praeclara Sheviak & Bowles [H, I] T
Poa wolfii Scribn. [I, C] SC
Polygala incarnata L. [H, I] T
Senecio pseudaureus Rydb. var. *semicordatus* (Mack. & Bush) T. Barkley [I, C] SC
Sibara virginica (L.) Rollins [C] SC
Spiranthes magnicamporum Sheviak [C] SC
Spiranthes ovalis Lindl. [C] T
Tomanthera auriculata (Michx.) Raf. [H, I, C] SC

Table 7. Vascular plant taxa encountered during inventory of the Ames flora (1859–2000) that are not listed in Eilers and Roosa (1994). B = Bessey (1871); H = Hitchcock (1890); I = specimen collected prior to 1990 held in the Ada Hayden Herbarium (ISC); C = encountered during current study (1990–2000). '*' = taxon not native to North America.

**Ajuga reptans* L. [C]
**Ampelopsis brevipedunculata* (Maxim.) Trautv. [C]
**Anthemis nobilis* L. [B]
**Arabidopsis thaliana* (L.) Heynh. [C]
Aster cordifolius L. × *A. drummondii* Lindley [I, C]
**Bassia hyssopifolia* (Pallas) Kuntze [C]
Boltonia decurrens (T. & G.) A. Wood. [C]
**Bromus catharticus* Vahl. [I]
Carex atherodes Sprengel × *C. trichocarpa* Schkuhr [C]
Carex mesochorea Mack. [C]
**Carthamus tinctorius* L. [C]
**Centaurium pulchellum* (Schwartz) Druce [C]
**Cleome hassleriana* Chodat [C]
**Cotoneaster multiflora* Bunge [C]
**Crepis capillaris* (L.) Wallr. [I, C]
**Cynodon dactylon* (L.) Pers. [I, C]
**Cynodon transvaalensis* Burt.-Davy [I]
Datura wrightii Regel [C]
**Digitaria bicornis* (Lam.) R. & S. [C]
**Duchesnea indica* (Andrews) Focke [C]
**Epipactis helleborine* (L.) Crantz [C]
**Erysimum diffusum* Ehrh. [C]
**Erysimum hieraciifolium* L. [C]
**Festuca myuros* L. [C]
**Festuca trachyphylla* (Hackel) Krajina [C]
**Geranium sibiricum* L. [C]
**Hieracium piloselloides* Villars. [C]
**Lapsana communis* L. [I, C]
**Lathyrus latifolius* L. [C]
**Ligustrum obtusifolium* Sieb. & Zucc. [C]
**Ligustrum vulgare* L. [C]
**Lonicera* × *bella* Zabel [C]
**Lonicera maackii* (Rupr.) Herder. [C]
Lycopus × *sherardii* Steele [C]
**Metaplexis japonica* (Thunb.) Makino [I]
**Parthenocissus tricuspidata* (Sieb. & Zucc.) Planchon [C]
Physalis hispida (Waterfall) Cronq. [I]
**Poa pratensis* subsp. *angustifolia* (L.) Lej. [C]
**Prunus tomentosa* Thunb. [C]
**Rhamnus utilis* Decne. [C]
Rosa × *rudiuscula* Greene [I]
Rubus ablatus Bailey [I, C]
**Rubus caesius* L. [C]
Rubus frondosus Bigelow [C]
**Rubus parvifolius* L. [I, C]
Rubus roribaccus (Bailey) Rydb. in Britton [I]
**Rumex stenophyllus* Ledeb. [C]
Sagina procumbens L. [C]
Sagittaria australis (J.G. Smith) J.K. Small [I, C]
**Scilla siberica* L. [C]
**Sedum kamtschaticum* Fisch. & C. A. Meyer [C]
**Spergularia marina* (L.) Griseb. [C]
**Ulmus pumila* L. × *U. americana* L. [C]
**Ulmus pumila* L. × *U. rubra* Muhl. [C]
Verbena × *perriana* Moldenke [I]
**Veronica polita* Fries [C]
**Viburnum lantana* L. [C]
**Viola arvensis* Murray [C]

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We dedicate this paper to the memory of two renowned Iowa botanists: Dr. Lawrence J. Eilers (1927–2000) and Dr. Duane Isely

(1918–2000). Dr. Eilers was a great supporter of floristic study in Iowa during the past half century. His efforts culminated in the publication of *The Vascular Plants of Iowa: an Annotated Checklist and Natural History* (1994, co-authored by Dean Roosa), which has provided the baseline for all subsequent floristic study in the state. Dr. Isely spent an equal number of years of research on the Fabaceae (bean family), becoming a nationally recognized scholar of this important plant family. His many years of work resulted in the 1998 publication of *Native and Naturalized Leguminosae (Fabaceae) of the United States (exclusive of Alaska and Hawaii)*. The achievements of these two botanists exemplify the two major aspects of plant taxonomy—floristic and monographic research.

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Appendix A. Annotated catalogue of the Ames flora

Voucher specimens are indicated by date and are deposited in the Ada Hayden Herbarium (ISC) at Iowa State University, Ames, IA.

Key

* = Species not native to Iowa
\+ = Species native to Iowa but probably not to Ames
B = Species listed for Ames by Bessey (1871), followed by synonym used by Bessey in brackets
H = Species included in Hitchcock (1890), followed by synonym used by Hitchcock in brackets
= = name as currently used was recognized by Bessey or Hitchcock in addition to synonym listed
Dates are of the earliest and, if not encountered during current survey, the most recent collections
n.d. = No date cited
C = Encountered during the current survey, 1991–2000
Plant Habitat Codes—see Table 1
Abundance Codes—rare, infrequent, frequent, or common; see Methods for further discussion

PTERIDOPHYTES

ADIANTACEAE
Adiantum pedatum L., B, H, 1869–C, **Tmf**—infrequent

ASPLENIACEAE
Asplenium platyneuron (L.) Oakes ex D.C. Eaton, 1999–C, **Tmf,ed**—rare
Athyrium felix-femina (L.) Roth var. *angustum* (Willd.) Moore, H [*Asplenium felix-foemina* (L.) Bernh.], 1869–C, **Tmf,wf**—infrequent
Cystopteris protrusa (Weath.) Blasdell, B[*C. fragilis* Bernh.], H[*C. fragilis* (L.) Bernh.], 1870–C, **Tmf**—common
Dryopteris carthusiana (Vill.) H.P. Fuchs, 1995–C, **Tmf**—rare
Matteuccia struthiopteris (L.) Todaro, 1881–C, **Wsp; Our**—rare
Onoclea sensibilis L., B, H, 1938–1938

DENNSTAEDTIACEAE
Pteridium aquilinum (L.) Kuhn var. *latiusculum* (Desv.) Underw. ex Heller, H[*Pteris aquilina* L.], 1889–1895

EQUISETACEAE
Equisetum arvense L., B, H, 1881–C, **Twf; Our**—common
Equisetum × *ferrissii* Clute, 1998–C, **Pwt; Orw**—frequent
Equisetum hyemale L. var. *affine* (Engelm.) A.A. Eaton, B, 1889–C, **Orw**—common
Equisetum laevigatum A. Br., 1893–C, **Pwt**—frequent

OPHIOGLOSSACEAE
Botrychium dissectum Sprengel f. *dissectum,* 1998–C, **Tmf,wd**—rare
Botrychium dissectum Sprengel f. *obliquum* (Muhl.) Clute, 1998–C, **Tdf,mf,wd**—rare
Botrychium virginianum (L.) Sw., B[*B. virginicum* Swartz.], H, 1881–C, **T**—common

OSMUNDACEAE
Osmunda claytoniana L., H, 1876–1901

GYMNOSPERMS

CUPRESSACEAE
Juniperus virginiana L., H, 1901–C, **Tdf,wd; Pdr; Orw,of,ps**—common

PINACEAE
\+*Pinus strobus* L., 2000–C, **Twd,ed**—rare

ANGIOSPERMS

(DICOTYLEDONS)

ACERACEAE
Acer ginnala* Maxim., 1999–C, **Orw—infrequent
Acer negundo L., B[*Negundo aceroides* Moench], H[*Negundo aceroides* Moench], 1892–C, **Tmf,ed; Orw**—common
Acer nigrum Michx., B[*A. saccharinum* Wang.], H[*A. saccharum* Marsh. var. *nigrum* (Michx. f.) Britton], 1892–C, **Tmf,wf**—common
Acer saccharinum Marsh., B[*A. dasycarpum* Ehrhart.], H, 1895–C, **Twf; Our,rw**—common

AIZOACEAE
Mollugo verticillata* L., H, 1892–C, **Wrp; Ocr—frequent

AMARANTHACEAE
Amaranthus albus L., H, 1907–C, **O**—common
Amaranthus graecizans* L., H[*A. blitoides* Wats.], 1897–C, **Our—common
Amaranthus hybridus* L., 2000–C, **Wrp; Our—rare
Amaranthus powellii* S. Watson, 2000–C, **Wrp—rare
Amaranthus retroflexus* L., B, H, 1887–C, **O—common
Amaranthus rudis Sauer, 1877–C, **O**—common
Amaranthus tuberculatus (Moq.) Sauer, H[*Acnida tuberculata* Moq.], 1907–C, **O**—common

ANACARDIACEAE
+*Rhus aromatica* Aiton, 1938–C, **Orw**—rare
Rhus glabra L., B, H, 1907–C, **Twd,ed; Pms; Orw,of**—common
+*Rhus typhina* L., 1948–C, **Our,rw**—rare
Toxicodendron radicans (L.) Kuntze ssp. *negundo* (Greene) Gillis, B[*Rhus toxicodendron* L.], H[*Rhus radicans* L.], 1893–C, **T; Pdr; Orw**—common

APIACEAE
Angelica atropurpurea L., B[*Archangelica atropurpurea* Hoffm.]
Chaerophyllum procumbens (L.) Crantz, B, H, 1897–C, **Twf**—frequent
Cicuta maculata L., H, 1907–C, **Pwt**—frequent
**Conioselinum chinense* (L.) BSP., H
Conium maculata* L., 1926–C, **Orw—frequent
Cryptotaenia canadensis (L.) DC., B, H, 1896–C, **Tmf,wf**—common
Daucus carota* L., H, 1907–C, **Orw,of—common
Eryngium yuccifolium Michx., B, H, 1888–C, **Pwt**—infrequent
Heracleum lanatum Michx., B, H, 1881–C, **Twf**—infrequent
Osmorhiza claytonii (Michx.) C.B. Clarke, B[*Osmorrhiza brevistylis* DC.], H[*Osmorrhiza claytoni* (Michx.) BSP.], 1896–C, **Tmf,wf**—common
Osmorhiza longistylis (Torrey) DC., B, H, 1887–C, **Tmf,wf**—common
Oxypolis rigidior (L.) Raf., B[*Archemora rigida* DC.], H[*Tiedemannia rigida* (L.) C. & R.], 1896–C, **Pwt**—infrequent
Pastinaca sativa* L., B, H, 1907–C, **Orw,of—common
Polytaenia nuttallii DC., H
Sanicula canadenis L., H[=; *S. canadensis* L. var. *marylandica* (L.)], 1942–C, **Tdf,mf**—frequent
Sanicula gregaria Bickn., 1897–C, **Tmf,wf**—common
Sium suave Walter, H[*S. cicutaefolium* Gmel.], 1881–C, **Twf; Pwt**—rare
Taenidia integerrima (L.) Drude, B[*Zizia integerrima* DC.], H[*T. integerrima* (L.) Benth. & Hook.], 1897–C, **Tdf,wd,ed**—rare
Thaspium barbinode (Michx.) Nutt., 1907–1907
Zizea aurea (L.) Koch, B[*Thaspium aureum* Nutt.], H, 1893–C, **Twd,ed; Pms,wt**—frequent

APOCYNACEAE
Apocynum androsaemifolium L., B, H, 1895–C, **Orw**—rare
Apocynum cannabinum L., B, H, 1895–C, **Pms,wt; Orw**—common
Apocynum × *medium* Greene, 1907–1907
Apocynum sibiricum Jacq., 1895–C, **Pms,wt; Orw**—common
**Vinca minor* L., 2000–C, Twf—rare

ARALIACEAE
Aralia nudicaulis L., B, H, 1897–C, **Tdf**—rare
Aralia racemosa L., B, H, 1999–C, **Tmf,es**—rare
Panax quinquefolia L., H[*Aralia quinquefolia* (L.) Decaisne & Planch.], photo, C, **Twf**—rare

ARISTOLOCHIACEAE
Asarum canadense L., B, H, 1881–C, **Tmf,wf**—frequent

ASCLEPIADACEAE
Asclepias amplexicaulis Smith, 1949–C, **Pdr**—rare
Asclepias incarnata L., B, H, 1896–C, **Pms,wt**—frequent
Asclepias ovalifolia Decne., H
Asclepias purpurascens L., B, H, 1897–1897
Asclepias sullivantii Engelm., H, 1907–C, **Pms,wt**—rare
Asclepias syriaca L., B[*A. cornuti* Decaisne.], H, 1881–C, **P; O**—common
Asclepias tuberosa L. ssp. *interior* Woodson, B, H[=; *A. tuberosa* L. var. *decumbens* (L.) Pursh], 1881–C, **Pdr,ms**—rare
Asclepias verticillata L., B, H, 1878–C, Pms—frequent
Asclepias viridiflora Raf., B[*Asclepias viridiflora* Ell.], H[*Acerates viridiflora* (Raf.) Ell.; *Acerates viridiflora* (Raf.) Ell. var. *lanceolata* (Ives) Gray], 1894-95–C, **Pdr**—rare
Cynanchum laeve (Michx.) Pers., 1964–C, **Our,rw**—frequent
**Metaplexis japonica* (Thunb.) Makino, 1958–1958

ASTERACEAE
Achillea millefolia L. ssp. *lanulosa* (Nutt.) Piper, B, H, 1881–C, **Twd; Pdr; Oof,ps**—frequent
Ambrosia artemisiifolia L., B, H, 1881–C, **Pdr; O**—common
Ambrosia psilostachya DC., B, H, 1942–C, **Pdr**—infrequent
Ambrosia trifida L., B[=; *A. trifida* L. var. *integrifolia*], H[=; *A. trifida* L. var. *integrifolia* (Muhl.) Torr. & Gray], 1888–C, **P; O**—common
Antennaria neglecta Greene, 1887–C, **Tdr,wd; Pdr**—infrequent
Antennaria plantaginifolia (L.) Richardson, B[*A. plantaginifolia* Hook.], H, 1902–C, **Tdr,wd; Pdr**—infrequent
**Anthemis arvensis* L., H
Anthemis cotula* L., B[*Maruta cotula* DC.], H, 1881–C, **Orw,rc,ps—frequent
**Anthemis nobilis* L., B
Arctium minus* Bernh., B[*Lappa officinalis* Allioni var. *major*], H[*A. lappa* L.], 1888–C, **Ted; Wrp; O—common
Artemisia annua* L., 2000–C, **Wrp—infrequent
Artemisia biennis* Willd., B, H, 1898?–C, **Twf—infrequent
Artemisia absinthium* L., 1998–C, **Orw—rare
Artemisia dracunculus L., B[*A. dracunculoides* Pursh], H[*A. dracunculoides* Pursh], 1928–1928
Artemisia ludoviciana Nutt., B, H, 1881–C, **Pdr,ms**—frequent
Artemisia serrata Nutt., H, 1909–1917
Artemisia vulgaris* L., 1999–C, **Orc,ur—rare
Aster × *amethystinus* Nutt., H
Aster azureus Lindley, H, 1876–C, **P**—infrequent
Aster cordifolius L., B, H, 1876–C, **T**—common
Aster cordifolius L. × *A. drummondii* Lindley, 1921–C, **Twd,ed**—infrequent
Aster ericoides L., B[*A. multiflorus* Ait.], H[*A. multiflorus* Ait.], 1876–C, **Pdr,ms; Orw,of**—frequent
Aster laevis L., H, 1902–C, **Pms,wt**—frequent
Aster lanceolatus Willd., B[*A. simplex* Willd.], H[*A. paniculatus* L.], 1909–C, **Pwt**—infrequent
Aster lateriflorus (L.) Britton, B[*A. miser* L.], H, 1876–C, T—common
Aster novae-angliae L., B, H[=; *A. novae-angliae* L. var. *roseus* (Desf.) DC.], 1876–C, **Pms,wt**—frequent
Aster oblongifolius Nutt., H[*A. oblongifolius* Nutt. var. *rigidulus* Gray], 1938–1938
Aster ontarionis Wieg., 1876–C, **Twt**—infrequent
Aster pilosus Willd., 1974–C, **P; Orw,of**—common
Aster praealtus Poiret, B[*A. carneus* Nees.], 1999–C, **Pwt**—rare
Aster prenanthoides Muhl. ex Willd., B, H, 1876–C, **Wsp**—rare
Aster pubentior Cronq., H[*A. umbellatus* Mill. var. *pubens* Gray], 1896–1920
Aster puniceus L., H[*A. puniceus* L. var. *lucidulus* (Wendr.) Gray], 1889–1922
Aster sagittifolius Willd., 1993–C, **Ted**—infrequent
Aster sericeus Vent., B, H, 1888–C, **Pdr**—rare
Aster umbellatus Miller, H
Bidens cernua L., B[*B. chrysanthemoides* Michx.], H[=; *B. chrysanthemoides* Michx.], 1897–C, **Wrp**—frequent
Bidens connata (L.) Britton, B, H, 1920–C, **Wrp**—frequent

Bidens frondosa L., B, H, 1888–C, **Wrp**—common
Bidens polylepis Blake, 1917–C, **Pms; Orw**—infrequent
Bidens tripartita L., B[*B. connata* L. var. *comosa*], 1920–C, **Wrp**—infrequent
Bidens vulgata Greene, 1896–C, **Pwt**—infrequent
Boltonia asteroides (L.) L'Her., B[*B. glastifolia* L'Her.], H, 1876–1876
Boltonia decurrens* (T. & G.) A. Wood, 2000–C, **Pwt—rare
Brickellia eupatorioides (L.) Shinners, B[*Kuhnia eupatorioides* L.], H[*Kuhnia eupatorioides* L.; *K. eupatorioides* L. var. *glutinosa* (Ell.)], 1888–C, **Twd,ed; Pdr**—frequent
Cacalia plantaginea (Raf.) Shinners, B[*C. tuberosa* Nutt.], H[*C. tuberosa* Nutt.], 1894–C, **Tes; Pdr,ms**—infrequent
Carduus acanthoides* L., 1999–C, **Oof—rare
Carduus nutans* L., 1894–C, **Ops—infrequent
Carthamus tinctorius* L., 2000–C, **Wrp; Our—rare
**Centaurea cyanus* L., B, 1904–1924
Cichorium intybus* L., 2000–C, **Orw—infrequent
Cirsium altissimum (L.) Sprengel, B, H[*Cnicus altissimus* (L.) Willd.], 1888–C, **P; O**—common
Cirsium arvense* (L.) Scop., H[*Cnicus arvensis* (L.) Hoffm.], 1898–C, **P; O—common
Cirsium discolor (Muhl. ex Willd.) Sprengel, H[*Cnicus altissimus* (L.) Willd. var. *discolor* (Muhl.) Gray], 1896–C, **P; O**—common
Cirsium flodmanii (Rydb.) Arthur, 1910–1910
Cirsium hillii (Canby) Fern., H[*Cnicus odoratus* Muhl.], 1897–C, **Pdr**—rare
Cirsium vulgare* (Savi) Tenore, H[*Cnicus lanceolatus* (L.) Hoffm.], 1896–C, **P; O—common
Conyza canadensis (L.) Cronq., H[*Erigeron canadensis* L.], 1897–C, **O**—common
Conyza ramosissima Cronq., B[*Erigeron divaricatus* Michx.], H[*Erigeron divaricatus* Michx.], 1942–C, **O**—infrequent
Coreopsis palmata Nutt., B, H, 1893–C, **Pms**—frequent
Coreopsis tinctoria* Nutt., 1892–C, **Oof—rare
Coreopsis tripteris L., H, 1912–C, **Twd**—rare
Crepis capillaris* (L.) Wallr., 1948–C, **Our—rare
Crepis tectorum* L., 1999–C, **Our—rare
Dyssodia papposa (Vent.) A.S. Hitchc., B[*Dysodia chrysanthemoides* Lag.], H, 1906–1906
Echinacea pallida Nutt., B[*E. angustifolia* DC.], H[*E. angustifolia* DC.], 1891–C, **Pdr,ms**—infrequent
+*Echinacea purpurea* (L.) Moench, 1998–C, **Orw**—rare
Eclipta alba (L.) Hassk., 1998–C, **Wmd**—rare
Erechtites hieracifolia (L.) Raf. ex DC., B, H, 1943–C, **Our**—infrequent
Erigeron annuus (L.) Pers., B, H, 1880–C, **Pms; O**—common
Erigeron philadelphicus L., B, H, 1884–C, **Tes,ed; Wrp; Our**—infrequent
Erigeron strigosus Muhl. ex Willd., B, H[*E. ramosus* (Walt.) B.S.P.], 1888–C, **Pdr,ms; Orw,of**—common
Eupatorium altissimum L., H, 1907–C, **Orw**—infrequent
Eupatorium maculatum L., H[*E. purpureum* L. var. *maculatum* (L.) Darl.], 1896–1942
Eupatorium perfoliatum L., B, H, 1907–C, **Pwt**—infrequent
Eupatorium purpureum L., B, H, 1897–C, **T**—frequent
Eupatorium rugosum Houtt., B[*E. ageratoides* L.], H[*E. ageratoides* L.], 1896–C, **T**—common
Euthamia graminifolia (L.) Nutt. ex Cass, B[*Solidago lanceolata* L.], H[*Solidago graminifolia* (L.) Ell.], 1884–C, **Pwt**—infrequent
+*Gaillardia pulchella* Foug., 1998–C, **Orw**—rare
Galinsoga quadriradiata* Ruiz & Pavon, 1970–C, **Our,rc,cr—infrequent
Gnaphalium obtusum L., 1942–C, **Twd,ed; Oof**—infrequent
Grindelia squarrosa (Pursh) Dunal, 1904–C, **Orc**—rare
Helenium autumnale L., B, H, 1909–C, **Pwt**—infrequent
Helianthus annuus L., B, H, 2000–C, **O**—frequent
Helianthus decapetalus L., H[*H. tracheliifolius* Willd.]
Helianthus grosseserratus Martens, B, H, 1888–C, **Pms,wt; Orw**—common
Helianthus maximiliani Schrader, 2000–C, **Orc**—infrequent
Helianthus rigidus (Cass.) Desf., B[=; *H. laetiflorus* Pers.], H[*H. diffusus* Sims; *H. laetiflorus* Pers.], 1896–C, **Pdr,ms; Orw**—infrequent
Helianthus strumosus L., H, 1897–C, **Twd**—frequent
Helianthus tuberosus L., H, 1890–C, **Twd,ed; Pms; Orw**—frequent
Heliopsis helianthoides (L.) Sweet, B[*H. laevis* Pers.], H[*H. scabra* Dunal], 1888–C, **Pdr,ms**—frequent
Hieracium longipilum Torrey, B, H, 1888–1898
Hieracium piloselloides* Villars., 2000–C, **Wrp—rare
Hieracium scabrum Michx., H, 1902–C, **Tms**—rare
Iva xanthifolia Nutt., 1926–C, **Twd,ed**—rare
Krigia biflora (Walter) Blake, 1907–1907
Lactuca biennis (Moench) Fern., H[*L. spicata* Lam.]
Lactuca canadensis L., B, H, 1897–C, **Pwt; Orw**—common
Lactuca floridana (L.) Gaertner, H, 1873–C, **T**—frequent
Lactuca ludoviciana (Nutt.) Riddell, H, 1888–C, **Oof**—rare
Lactuca serriola* L., B[*L. scariola* L.], H[*L. scariola* L.], 1913–C, **O—frequent
Lactuca tatarica (L.) C.A. Meyer ssp. *puchella* (Pursh) Stebbins, 1927–C, **Pms,wt**—rare
Lapsana communis* L., 1966–C, **Orc—rare
Leucanthemum vulgare* Lam., B, H[*Chrysanthemum Leucanthemum* L.], 1887–C, **O—infrequent
Liatris aspera Michx., B[*L. scariosa* (L.) Willd.], H[*L. scariosa* (L.) Willd.], 1897–C, **Pdr,ms**—infrequent
Liatris cylindracea Michx., B, H, 1888–1907
Liatris pycnostachya Michx., B, H, 1888–C, **Pms,wt**—infrequent
Liatris squarrosa (L.) Michx., 1906–1906
Matricaria matricarioides* (Less.) Porter, 1994–C, **Our,rc—common
Nothocalais cuspidata (Pursh) Greene, B[*Troximon cuspidatum* Pursh.], H[*Troximon cuspidatum* Pursh], 1869–C, **Pdr,ms**—rare
Prenanthes alba L., B[*Nabalus albus* Hook.], H, 1869–C, **T**—common
Prenanthes aspera Michx., B[*Nabalus asper* Torr. & Gray], H, 1877–1906
Prenanthes racemosa Michx., H, 1885–C, **Pwt**—infrequent
+*Ratibida columnifera* (Nutt.) Wooton & Standley, 1998–C, **Orw**—rare
Ratibida pinnata (Vent.) Barnh., H[*Lepachys pinnata* (Vent.) Torr. & Gray], 1888–C, **Pdr,ms**—frequent
Rudbeckia hirta L., B, H, 1897–C, **Twd; Pdr,ms; Orw**—frequent
Rudbeckia laciniata L., B, H, 1920–C, **Twf**—frequent
Rudbeckia subtomentosa Pursh, H, 1897–C, **Pms,wt**—rare
Rudbeckia triloba L., B, H, 1896–C, **Twf,ed; Wrp**—frequent
Senecio aureus L., B, H
Senecio pauperculus Michx., 1873–1907
Senecio plattensis Nutt., 1897–C, Ted; **P**—infrequent
Senecio pseudaureus Rydb. var. *semicordatus* (Mack. & Bush) T. Barkley, 1884–C, **Pwt**—rare
Senecio vulgaris* L., 1998–C, **Wrp; Our,cr—infrequent
Silphium integrifolium Michx., 2000–C, **Pwt**—rare
Silphium laciniatum L., B, H, 1895–C, **Pms,wt**—frequent
Silphium perfoliatum L., B, H, 1897–C, **Pms,wt; Wrp**—frequent
Solidago canadensis L., B, H[=; *S. canadensis* L. var. *procera* (Ait.) Torr. & Gray], 1874–C, **P; O**—common

Solidago flexicaulis L., B[*S. latifolia* L.], H[*S. latifolia* L.], 1876–C, **Tdf,mf**—infrequent
Solidago gigantea Aiton, H[*S. serotina* Ait.; *S. serotina* Ait. var. *gigantea* (Ait.) Gray], 1876–C, **P; O**—common
Solidago missouriensis Nutt., B, H, 1869–C, **Pdr**—rare
Solidago nemoralis Aiton, H, 1895–C, **Twd; Pdr**—frequent
Solidago riddellii Frank ex Riddell, B, H, 1896–C, **Pwt**—rare
Solidago rigida L., B, H, 1876–C, **Pdr,ms**—frequent
Solidago speciosa Nutt., H[*S. speciosa* Nutt. var. *angustata* Torr. & Gray], 1878–C, **Pdr**—rare
Solidago ulmifolia Muhl. ex Willd., B, H, 1869–C, **Tmf**—frequent
Sonchus arvensis* L., 1928–C, **Orw—infrequent
Sonchus asper* (L.) Hill, H, 1885–C, **Our,rw—frequent
Sonchus oleraceus* L., H, 1890–C, **Our,rw—frequent
Tanacetum vulgare* L., H, 1924–C, **Our,rc—rare
Taraxacum laevigatum* (Willd.) DC., 1918–C, **Twd; Our,ps—infrequent
Taraxacum officinale* Weber, B[*T. dens-leonis* Desf.], H, 1873–C, **O—common
Tragopogon dubius* Scop., 1928–C, **Our,rw—frequent
**Tragopogon pratensis* L., 1921–1921
Verbesina alternifolia (L.) Britton, B[*Actinomeris squarrosa* Nutt.], H[*Actinomeris alternifolia* (L.) DC.], 1896–C, **Twf,wd**—rare
Vernonia baldwinii Torrey, 2000–C, **Pdr**—rare
Vernonia fasciculata Michx., B, H, 1895–C, **Pwt**—infrequent
Xanthium strumarium* L., B, H[*X. canadense* Mill.], 1871–C, **Wrp; O—common

BALSAMINACEAE
Impatiens capensis Meerb., B[*I. fulva* Nutt.], H[*I. biflora* Walt.], 1896–C, **Twf; Wrp,sp**—common
Impatiens pallida Nutt., H[*I. aurea* Muhl.], 1907–C, **Twf; Wrp,sp**—frequent

BERBERIDACEAE
Berberis thunbergii* DC., 2000–C, **Tdf,wd; Ops—frequent
**Berberis vulgaris* L., 1922–1923
Caulophyllum thalictroides (L.) Michx., B, H, 1890–C, **Tmf**—rare
Podophyllum peltatum L., B, H, 1881–C, **Tmf,wf**—frequent

BETULACEAE
Corylus americana Walter, B, H, 1893–C, **Tdr,wd,ed; Orw**—infrequent
Ostrya virginiana (P. Miller) K. Koch, B[*O. virginica* Willd.], H, 1891–C, **T**—common

BIGNONIACEAE
Campsis radicans* (L.) Seem. ex Bureau, 1968–C, **Ted—rare
Catalpa speciosa* Warder, 1905–C, **Twf—infrequent

BORAGINACEAE
Cynoglossum officinale* L., B[*C. morissoni* DC.], 1897–C, **Twd—rare
Hackelia virginiana (L.) I.M. Johnston, H[*Echinospermum virginianum* (L.) Lehm.], 1894–C, **T**—common
Lappula echinata* Gilib., B[*Echinospermum lappula* Lehm.], H[*Echinospermum lappula* (L.) Lehm.], 1895–C, **Orw,rc—infrequent
Lithospermum canescens (Michx.) Lehm., B, H, 1881–C, **Pdr,ms**—infrequent
Lithospermum incisum Lehm., B[*L. longiflorum* Spreng.], H[*L. angustifolium* Michx.], 1881–C, **Twd; Pdr**—rare
Lithospermum latifolium Michx., B, H
Mertensia virginica (L.) Pers. ex Link, B[*M. virginica* DC.], H, 1881–C, **Tmf,wf**—frequent
Onosmodium molle Michx. var. *hispidissimum* (Mack.) Cronq., B[*O. carolinianum* DC.], H[*O. carolinianum* (Lam.) DC.], 1895–C, **Pdr**—infrequent

BRASSICACEAE
Alliaria petiolata* (Bieb.) Cavara & Grande, 1998–C, **Tdf,mf,wf—infrequent
Alyssum alyssoides* (L.) L., H[*A. calycinum* L.], 1999–C, **Orc—rare
Arabidopsis thaliana* (L.) Heynh., 2000–C, **Our—rare
Arabis canadensis L., H, 1998–C, **Tdf,ed**—infrequent
Arabis glabra (L.) Bernh., 1999–C, **Ops**—rare
Arabis hirsuta (L.) Scop., H, 1897–C, **Tmf; Orc,ps**—infrequent
Arabis laevigata (Muhl. ex Willd.) Poiret, 1903–1903
Arabis shortii (Fern.) Gl., H[*A. dentata* Torr. & Gray], 1895–C, **Tmf,wf**—infrequent
Armoracia rusticana* (Lam.) Gaertner, Meyer & Schreber, H[*Nasturtium armoracia* (L.) Fries], 1897–C, **Ted—rare
Barbarea vulgaris* R. Br., H, 1890–C, **Twf; Wrp; Orw,cr,of—common
Berteroa incana* (L.) DC., 1927–C, **Orw—infrequent
Brassica campestris* L., 1924–C, **O—infrequent
Brassica juncea* (L.) Czern., 1904–C, **Orw—frequent
Brassica nigra* (L.) W.D.J. Koch, B, H, 1891–C, **O—common
Camelina microcarpa* Andrz. ex DC., 1962–C, **Orc—rare
**Camelina sativa* (L.) Crantz, B, H
Capsella bursa-pastoris* (L.) Medicus, B, H, 1892–C, **O—common
Cardamine bulbosa (Schreber) BSP., B[*C. rhomboidea* DC.], H, 1887–C, **Wrp,sp**—infrequenr
Cardamine flexuosa* With., 1998–C, **Our—rare
Cardamine pensylvanica Muhl. ex Willd., H[*C. flexuosa* With.], 1897–C, **Wrp,sp**—rare
Cardaria draba* (L.) Desv., 1927–C, **Our—rare
Chorispora tenella* (Pallas) DC., 1975–C, **Our—rare
**Conringia orientalis* (L.) Dum., 1911–1954
Dentaria laciniata Muhl. ex Willd., B, H, 1887–C, **Tmf,wf**—frequent
Descurainia pinnata (Walter) Britton var. *brachycarpa* (Richardson) Fern., H[*Sisymbrium canescens* Nutt.], 1897–C, **Our,rc**—frequent
Descurainia sophia* (L.) Webb ex Prantl, 1999–C, **Orc—rare
Draba reptans (Lam.) Fern., B[*D. caroliniana* Walt.], H[*D. caroliniana* Walt.], 1892–1937
Erysimum cheiranthoides* L., B, H, 1897–C, **Orc—infrequent
Erysimum diffusum* Ehrh., 1999–C, **Orc—rare
Erysimum hieraciifolium* L., 1999–C, **Orw,rc—rare
Erysimum repandum* L., 1940–C, **Our—frequent
Hesperis matronalis* L., H, 1962–C, **Twf,wd,ed; Orw—frequent
Iodanthus pinnatifidus (Michx.) Steudel, H[*Thelypodium pinnatifidum* (Mich.) Wats.], 1895–C, **Twf**—rare
Lepidium campestre* (L.) R. Br., 1943–C, **O—infrequent
Lepidium densiflorum Schrader, H[*L. intermedium* Gray], 1891–C, **O**—common
**Lepidium perfoliatum* L., 1950–1958
Lepidium virginicum L., B, H, 1912–C, **O**—common
Nasturtium officinale* R. Br., H, 1998–C, **Wrp—rare
Rorippa austriaca* (Crantz) Besser, 1951–C, **Twd—rare
Rorippa palustris (L.) Besser, H[*Nasturtium palustre* (Leys.) DC.], 1897–C, **Pwt; Wrp,md**—common
Rorippa sessiliflora (Nutt.) A.S. Hitchc., H[*Nasturtium sessiliflorum* Nutt.], 2000–C, **Wrp**—rare
**Rorippa sylvestris* (L.) Besser, 1926–1926
Sibara virginica* (L.) Roll., 2000–C, **Wrp—rare
**Sinapis alba* L., H[*Brassica alba* (L.) Boiss.]

Sinapis arvensis L., B, H[*Brassica sinapistrum* Boiss.], 1893–C, **Our**—rare
Sisymbrium altissimum* L., 1898–C, **Our,rw—frequent
Sisymbrium loeselii* L., 1976–C, **Our,rw—infrequent
Sisymbrium officinale* (L.) Scop., B, H, 1897–C, **Our,rw—frequent
Thlaspi arvensis* L., 1909–C, **Our,rc,cr—common

CAMPANULACEAE
Campanula americana L., B, H, 1888–C, **T; Wrp**—common
Campanula aparinoides Pursh, B, H, 1896–C, **Pwt; Wsp**—rare
Campanula rapunculoides* L., 1958–C, **Ted; Our,rw—infrequent
Lobelia cardinalis L., B, H, 1888–1913
Lobelia inflata L., H, 1896–C, **Twd,ed**—frequent
Lobelia siphilitica L., B, H, 1881–C, **Twf,es,ed; Pwt; Wrp; Orw**—common
Lobelia spicata Lam., B, H[*L. spicata* Lam. var. *hirtella* Gray], 1942–C, **Twd; Pdr,ms**—infrequent
Triodanis perfoliata (L.) Nieuw., B[*Specularia perfoliata* A. DC.], H[*Specularia perfoliata* (L.) A. DC.], 1897–C, **Orc,cr,of**—frequent

CAPPARIDACEAE
Cleome hassleriana* Chodat, 2000–C, **Wrp—rare
Polanisia dodecandra (L.) DC., B[*P. graveolens* Raf.], H, 1892–1962

CAPRIFOLIACEAE
Lonicera* × *bella* Zabel, 1998–C, **Ted—infrequent
Lonicera dioica L. var. *glaucescens* (Rydb.) Butters, B[*L. parviflora* Lam. var. *douglasii*], H[*L. glauca* Hill], 1881–C, **Tmf,df,wd**—infrequent
Lonicera maackii* (Rupr.) Herder, 1993–C, **T; Our,rw—common
Lonicera tatarica* L., 1891–C, **T; Our,rw—common
Sambucus canadensis L., B, H, 1897–C, **Twf,ed; Orw**—common
Symphoricarpos occidentalis Moench, H, 1998–C, **Pms; Orw**—infrequent
Symphoricarpos orbiculatus Moench, H[*S. vulgaris* Michx.], 1998–C, **Tmf,wd; Oof**—rare
Triosteum perfoliatum L., B, H, 1881–C, **Tdf,wd**—infrequent
Viburnum lantana* L., 1998–C, **Tmf,wf; Our—rare
Viburnum lentago L., B, H, 1881–C, **Tdf,mf,ed; Our,rw**—infrequent
Viburnum opulus* L., 1993–C, **Tmf,wf; Our—infrequent
Viburnum rafinesquianum Schultes, B[*V. pubescens* Pursh], H[*V. pubescens* Pursh], 1895–C, **Tmf**—infrequent

CARYOPHYLLACEAE
**Agrostemma githago* L., B[*Lychnis githago* Lam.], H[*Lychnis githago* (L.) Lam.], 1895–1895
Arenaria serpyllifolia* L., 2000–C, **Wrp—rare
**Cerastium glomeratum* Thuill., B[*Cerastium viscosum* L.]
Cerastium nutans Raf., 1897–C, **Orc**—rare
Cerastium vulgatum* L., 1924–C, **Our,rw,ps—common
Dianthus armeria* L., 2000–C, **Pdr—infrequent
Holosteum umbellatum* L., 1999–C, **Our—rare
Myosoton aquaticum* (L.) Moench, 1998–C, **Our—rare
Paronychia canadensis (L.) Wood, H[*Anychia canadensis* (L.) B.S.P.], 1892–C, **Tdf**—rare
Sagina procumbens* L., 2000–C, **Wrp—rare
Saponaria officinalis* L., H, 1961–C, **Orw—common
Silene antirrhina L., B, H, 1894–C, **Orc**—infrequent
Silene cserei* Baumg., 1962–C, **Orw,rc—infrequent
**Silene dichotoma* Ehrh., 1907–1907
Silene nivea (Nutt.) Otth, H, 1897–C, **Twf; Wsp**—rare
Silene noctiflora* L., 1890–C, **Orc—infrequent
Silene pratensis* (Raf.) Gren. & Godrun, 1892–C, **O—common
Silene stellata (L.) Aiton, B, H, 1879–C, **Tmf,wf,ed; Wrp**—infrequent
Silene vulgaris* (Moench) Garcke, 1897–C, **Oof—rare
**Spergula arvensis* L., B
Spergularia marina* (L.) Griseb., 1999–C, **Our—rare
Stellaria longifolia Muhl. ex Willd., H
Stellaria media* (L.) Vill., H, 1895–C, **Our—common
**Vaccaria pyramidata* Medicus, H[*Saponaria vaccaria* L.], 1895–1928

CELASTRACEAE
Celastrus scandens L., B, H, 1897–C, **Tmf,wf,ed; Orw**—frequent
Euonymus alatus* (Thunb.) Sieb., 1999–C, **Tmf,wd,ed—rare
Euonymus atropurpureus Jacq., B, H, 1891–C, **Twf,ed; Orw**—infrequent

CERATOPHYLLACEAE
Ceratophyllum demersum L., H, 1998–C, **Wsz**—frequent

CHENOPODIACEAE
Atriplex patula L., 1907–C, **Wrp; Our,cr**—infrequent
Bassia hyssopifolia* (Pallas) Kuntze, 1998–C, **Orc—rare
Chenopodium album* L., B, H, 1888–C, **O—common
Chenopodium berlandieri Moq., 1897–C, **Twf; Our**—common
**Chenopodium botrys* L., H, 1892–1895
Chenopodium bushianum* Aellen, 1961–C, **Twf—rare
Chenopodium desiccatum A. Nelson, 1942–1942
Chenopodium foggii H.A. Wahl, 1897–1907
Chenopodium glaucum* L., 1999–C, **Orc—rare
Chenopodium hybridum L., B, H, 1895–C, **Twf; Wrp**—frequent
Chenopodium missouriensis Aellen, 1898–1898
Chenopodium rubrum L., 1960–1960
Chenopodium standleyanum Aellen, B[*C. album* L. var. *boscianum* Gr.], H[*C. boscianum* Moq.], 1896–C, **Twf,ed; Our**—frequent
**Chenopodium urbicum* L., H, 1894–1894
Cycloloma atriplicifolium (Sprengel) Coulter, 1892–1942
Kochia scoparia* (L.) Schrader, 1927–C, **Orw,rc—infrequent
**Monolepis nuttalliana* (Roemer & Schultes) Greene, 1917–1917
Salsola collina* Pallas, 1959–C, **Orw,rc—frequent
Salsola iberica* Sennen & Pau, 1904–C, **Orw,rc—rare

CISTACEAE
Helianthemum bicknellii Fern., H, 1897–C, **Tmf,wd; Pdr**—rare

CONVOLVULACEAE
Calystegia sepium (L.) R. Br., B, H[*Convolvulus sepium* L.], 1881–C, **Our,rw**—common
Convolvulus arvensis* L., H, 1895–C, **Our,rw—common
Cuscuta cephalanthii Engelm., H, 1999–C, **Oof**—rare
Cuscuta coryli Engelm., H
Cuscuta glomerata Choisy, B, H, 1888–1942
Cuscuta gronovii Willd., B, H
Cuscuta pentagona Engelm., 1909–C, **Twf**—infrequent
Ipomoea hederacea* (L.) Jacq., 1998–C, **Ted; Oof—rare

CORNACEAE
Cornus alternifolia L.f., H, 1896–C, **Tmf,wf**—frequent
Cornus amomum P. Miller ssp. *obliqua* (Raf.) J.S. Wilson, B[*C. sericea* L.], H[*C. sericea* L.], 1892–C, **Ted; Wrp; Orw**—frequent
Cornus drummondii C.A. Meyer, H[*C. asperifolia* Michx.], 1914–C, **Ted; Orw,of**—frequent
Cornus foemina P. Miller ssp. *racemosa* (Lam.) J.S. Wilson, B[*C.*

paniculata L'Her.], H[*C. candidisima* Marsh.], 1894–C, **Ted**—frequent
Cornus rugosa Lam., B[*C. circinata* L'Her.], H[*C. circinata* L'Her.]
+*Cornus stolonifera* Michx., 2000–C, **Oof**—rare

CRASSULACEAE
Sedum kamtschaticum* Fisch. & C.A. Meyer, 1999–C, **Orw—rare

CUCURBITACEAE
Echinocystis lobata (Michx.) T. & G., B, H[*E. echinata* (Muhl.) B.S.P.], 1885–C, **Twf**—rare
Sicyos angulatus L., B, 1902–C, **Twf**—infrequent

ELAEAGNACEAE
Elaeagnus angustifolia* L., 1951–C, **Our—rare
Elaeagnus umbellata* Thunb., 1891–C, **Twd,ed; Orw,of—frequent

ERICACEAE
Monotropa uniflora L., B, H, 1889–C, **Tdf,mf**—infrequent

EUPHORBIACEAE
Acalypha rhomboidea Raf., 1884–C, **Wrp; Our**—common
Acalypha virginica L., B, H, 1933–C, **Twd**—rare
Croton glandulosus L. var. *septentrionalis* Mueller-Arg., 2000–C, **Pdr**—rare
Euphorbia corollata L., B, H, 1880–C, **P; Orw,rc**—frequent
Euphorbia cyathophora Murray, H[*E. heterophylla* L.], 1933–C, **Orc,of**—infrequent
Euphorbia cyparissias* L., H, 1891–C, **Orc—rare
Euphorbia dentata Michx., 1928–C, **O**—frequent
Euphorbia esula* L., 1907–C, **Pdr—rare
Euphorbia glyptosperma Engelm., H, 1897–C, **Twd; Our**—infrequent
Euphorbia maculata L., B[=; *E. hypericifolia* L.], H[=; *E. hypericifolia* L.], 1907–C, **Our,rw,cr**—common
Euphorbia marginata Pursh, H, 1956–1956
Euphorbia missurica Raf., H[*E. petaloidea* Engel.], n.d.–n.d.
Euphorbia nutans Lag., 1888–C, **Our,rw,cr**—common
Euphorbia serpens HBK., 1998–C, **Our,cr**—frequent
**Euphorbia serpyllifolia* Pers., B

FABACEAE
Amorpha canescens Pursh, B, H, 1897–C, **Twd; Pdr,ms**—infrequent
Amorpha fruticosa L., B, H, 1881–C, **Twf**—infrequent
Amphicarpaea bracteata (L.) Fern., H[*A. comosa* (L.) Riddell], 1897–C, **Twf**—frequent
Apios americana Medicus, B[*A. tuberosa* Moench], H[*A. tuberosa* Moench], 1896–C, **Twf,ed**—infrequent
Astragalus canadensis L., B, H, 1913–C, **Twf,ed**—infrequent
Astragalus crassicarpus Nutt., B[*A. caryocarpus* Ker.], H[*A. caryocarpus* Ker.], 1884–C, **Pdr,ms**—infrequent
Baptisia bracteata Muhl. ex Ell. var. *glabrescens* (Larisey) Isely, B[*B. leucophaea* Nutt.], H[*B. leucophaea* Nutt.], 1881–C, **Pdr,ms**—infrequent
Baptisia lactea (Raf.) Thieret, B[*B. leucantha* Torr. & Gray], H[*B. leucantha* Torr. & Gray], 1897–C, **Pdr,ms**—infrequent
Cassia marilandica L., 1998–C, **Twf,ed**—rare
+*Cercis canadensis* L., 2000–C, **Ted; Our**—infrequent
Chamaecrista fasciculata (Michx.) Greene, B[*Cassia chaemaecrista* L.], H[*Cassia chaemaecrista* L.], 1895–C, **Twd,ed; Pdr; Orw**—frequent
Coronilla varia* L., 1994–C, **Pdr,ms; Orw—frequent
Crotalaria sagittalis L., 1998–C, **Ted**—rare
Dalea candida Willd., B[*Petalostemon candidus* Michx.], H[*Petalostemon candidus* (Willd.) Michx.], 1880–C, **Pdr,ms**—infrequent
Dalea leporina (Aiton) Bullock, H[*D. alopecuroides* Willd.], 1890–1890
Dalea purpurea Vent., B[*Petalostemon violaceus* Michx.], H[*Petalostemon violaceus* (Willd.) Michx.], 1880–C, **Pdr,ms**—frequent
Dalea villosa (Nutt.) Sprengel, H[*Petalostemon villosus* Nutt.]
Desmodium canadense (L.) DC., B, H, 1888–C, **Pdr**—frequent
Desmodium cuspidatum (Muhl. ex Willd.) Louden, 1881–1961
Desmodium glutinosum (Muhl. ex Willd.) Wood, B[*D. acuminatum* DC.], H[*D. grandiflorum* (Walt.) DC.], 1897–C, **Tdf,mf,wd**—infrequent
Desmodium illinoense Gray, H, 1907–C, **Pdr,ms**—infrequent
Desmodium paniculatum (L.) DC., H[*D. dillenii* Darl.]
Desmodium sessilifolium (Torr.) T. & G., B, H
Gleditsia triacanthos L., B, H, 1914–C, **Twf,wd,ed; Our,rw,of,ps**—common
Glycyrrhiza lepidota Pursh, H, 1898–C, **Orw**—rare
Gymnocladus dioica (L.) K. Koch, B[*G. canadensis* Lam.], H, 1906–C, **Tmf,wf**—infrequent
Lathyrus latifolius* L., 1948–C, **Twf—rare
Lathyrus ochroleucus Hooker, 1949–1949
Lathyrus palustris L., B, H, 1897–C, **Pwt; Orw**—infrequent
Lathyrus venosus Muhl. ex Willd., H, 1896–1907
Lespedeza capitata Michx., H[*L. frutescens* (Willd.) Ell.], 1896–C, **Twd; Pdr,ms**—frequent
Lespedeza leptostachya Engelm., H, photo, C, **Pdr**—rare
Lotus corniculatus* L., 1876–C, **Pdr,ms; O—common
Lotus purshianus Clem. & Clem., 1897–1897
Medicago lupulina* L., B, H, 1898–C, **O—common
Medicago sativa* L., H, 1882–C, **Oof,rw—frequent
Melilotus alba* Medicus, H, 1904–C, **Pdr; O—common
Melilotus officinalis* (L.) Pallas, H, 1895–C, **Pdr; O—common
Pediomelum argophyllum (Pursh) Grimes, H[*Psoralea argophylla* Pursh], 1894–C, **Pdr,ms**—rare
Robinia pseudo-acacia* L., H, 1961–C, **Twf,ed; Our,rw—infrequent
Strophostyles helvula (L.) Ell., H[*S. angulosa* (Ort.) Ell.], 1891–C, **Orc**—rare
**Trifolium arvense* L., B, H
**Trifolium aureum* L., H[*T. agrarium* L.]
Trifolium campestre* Schreber, B[*T. procumbens* L.], H[*T. procumbens* L.], 1880–C, **Twd—infrequent
Trifolium hybridum* L., 1895–C, **Our—frequent
Trifolium pratense* L., H, 1880–C, **O—common
**Trifolium repens* L., H, 1892–C, O—common
Vicia americana Muhl. ex Willd., B, H, 1881–C, **Pwt; Orw**—frequent
**Vicia sativa* L. var. *nigra* L., 1963–1963
Vicia villosa* Roth, 1890–C, **Orc,of—rare

FAGACEAE
Quercus alba L., B, H, 1873–C, **Tdf,wd**—common
Quercus borealis Michx.f. var. *maxima* (Marsh.) Ashe, H[*Q. rubra* L.], 1873–C, **Tdf,mf**—common
Quercus macrocarpa Michx., B, H, 1873–C, **T; Ops**—common
Quercus velutina Lam., H[*Q. coccinea* Wang.], 2000–C, **Tdf,ed**—infrequent

GENTIANACEAE
Centaurium pulchellum (Schwartz) Druce, 1999–C, **Our**—rare
Gentiana alba Muhl., B, H[*G. flavida* Gray], 1899–C, **Tdf,wd**—infrequent
Gentiana andrewsii Griseb., B, H, 1899–C, **Tes; Pwt**—infrequent
Gentiana × *billingtonii* Farw., B[*G. saponaria* L.]
Gentiana puberulenta J. Pringle, B[*G. puberula* Michx.], H[*G. puberula* Michx.], 1898–C, **Pdr,ms**—rare
Gentianopsis crinita (Froelich) Ma., B[*Gentiana crinita* Froel.], H
Gentianella quinquefolia (L.) Small ssp. *occidentalis* (A. Gray) J. Gillett, B[*Gentiana quinqueflora* Lam.], H[*Gentiana quinquefolia* L. var. *occidentalis*], 1902–C, **Tes; Pms,wt**—rare

GERANIACEAE
Erodium cicutarium (L.) L'Her. 1914–1914
Geranium carolinianum L., 1929–C, **Our**—rare
Geranium maculatum L., B, H, 1881–C, **Tmf,wf**—common
Geranium pusillum L., 1929–1929
Geranium sibiricum L., 1979–C, **Twf; Our,rw**—rare

HALORAGIDACEAE
Proserpinaca palustris L., B, H

HIPPOCASTANACEAE
Aesculus glabra Willd., 2000–C, **Twf**—rare

HYDROPHYLLACEAE
Ellisia nyctelea L., B[*E. ambigua* Nutt.], H, 1887–C, **Twf; Our,rw**—frequent
Hydrophyllum virginianum L., B, H, 1881–C, **Tmf,wf**—common

HYPERICACEAE
Hypericum majus (Gray) Britton, H[*H. canadense* L. var. *majus* Gray], 2000–C, **Ted**—rare
Hypericum perforatum L., 1942–C, **Pwt; Orw,rc,of**—infrequent
Hypericum prolificum (Spach) Steudel, 1989–C, **Twd**—rare
Hypericum punctatum Lam., H[*H. maculatum* Walt.], 1951–C, **Tmf,wd**—infrequent
Hypericum pyramidatum Aiton, B, H[*H. ascyron* L.], 1894–C, **Ted; Pdr**—infrequent

JUGLANDACEAE
Carya cordiformis (Wang.) K. Koch, B[*C. amara* Nutt.], H[*Hicoria minima* (Marsh.) Britt.], 1901–C, **Tmf,wf**—common
Carya ovata (P. Miller) K. Koch, B[*C. alba* Nutt.], H[*Hicoria ovata* (Mill.) Britt.], 1897–C, **Tdr,mf,wd**—common
Juglans cinerea L., B, H, 1883–C, **Tmf,wf**—infrequent
Juglans nigra L., B, H, 1897–C, **Tmf,wf; Our,rw**—common

LAMIACEAE
Agastache foeniculum (Pursh) Kuntze, 1948–1948
Agastache nepetoides (L.) Kuntze, H[*Lophanthus nepetoides* (L.) Benth.], 1897–C, **Twf**—frequent
Agastache scrophulariifolia (Willd.) Kuntze, B[*Lophanthus scrophulariaefolius* Benth.], H[*Lophanthus scrophulariaefolius* (Willd.) Benth.], 1884–C, **Twd,ed**—rare
Ajuga reptans L., 1999–C, **Twd**—rare
Blephilia hirsuta Benth., B
Dracocephalum parviflorum Nutt., 1914–C, **Orc**—rare
Glechoma hederacea L., H[*Nepeta hederacea* (L.) B.S.P.], 1919–C, **Twf; Wrp; O**—common
Hedeoma hispidum Pursh, H, 1907–C, **Twd; Orc**—frequent
Hedeoma pulegioides (L.) Pers., H, 1889–C, **Tdf,wd**—rare
Lamium amplexicaule L., 1998–C, **Our,rw**—infrequent
Leonurus cardiaca L., H, 1895–C, **Twf,ed; Wrp**—common
Lycopus americanus Muhl. ex Barton, B[*L. europaeus* L. var. *sinuatus* Gr.], H[*L. sinuatus* Ell.], 1889–C, **Pwt; Wrp; Orw**—frequent
Lycopus × *sherardii* Steele, 1999–C, **Wrp**—rare
Lycopus uniflorus Michx., 1889–C, **Pwt**—rare
Lycopus virginicus L., H[=; *L. rubellus* Moench (ISC specimen misidentified)], 1907–C, **Pwt**—frequent
Mentha arvensis L., B[*M. canadensis* L.], H[*M. canadensis* L.; *M. canadensis* L. var. *borealis* (Michx.) Wood], 1917–C, **Pwt; Wrp**—frequent
Monarda fistulosa L., B, H, 1881–C, **P**—common
Nepeta cataria L., B, H, 1881–C, **O**—common
Perilla frutescens (L.) Britton, C, **Ops**—rare
Physostegia parviflora Nutt. ex Gray, 1907–C, **Wrp,md**—infrequent
Physostegia virginiana (L.) Bentham, B, H, 1999–C, **Wrp**—rare
Prunella vulgaris L., B[*Brunella vulgaris* L.], H[*Brunella vulgaris* L.], 1888–C, **T; O**—frequent
Prunella vulgaris L. var. *lanceolata* (Bartram) Fern., 1897–C, **Twf**—rare
Pycnanthemum virginianum (L.) Dur. & Jackson, B[*P. lanceolatum* Pursh], H, 1881–C, **Pms,wt**—frequent
Salvia nemorosa L., 1999–C, **Ocr**—rare
Salvia reflexa Hornem., H[*S. lanceolata* Willd.], 1895–C, **Orc**—rare
Scutellaria galericulata L., H, 1897–1942
Scutellaria lateriflora L., B, H, 1961–C, **Pwt; Wrp**—frequent
Scutellaria leonardii Epling, B[*S. parvula* Michx.], H[*S. parvula* Michx.], 1895–C, **Pdr,ms; Ops**—infrequent
Stachys palustris L., H, 1894–95–C, **Pms,wt; Wrp**—frequent
Stachys tenuifolia Willd., H[*S. aspera* Michx.; *S. aspera* Michx. var. *tenuiflora* (Willd.)], 1907–C, **Twf**—frequent
Teucrium canadense L., B, H, 1896–C, **Twd,ed**—frequent
Teucrium canadense L. var. *boreale* (Bickn.) Shinners, 1897–C, **Twd,ed**—frequent

LENTIBULARIACEAE
Utricularia vulgaris L., H, 1999–C, **Wsz,md**—infrequent

LINACEAE
Linum sulcatum Riddell, B, H, 1894–C, **Pdr; Ops**—rare

LYTHRACEAE
Ammania coccinea Rottb., H, 1999–C, **Wmd; Ocr**—frequent
Lythrum alatum Pursh, B, H, 1895–C, **Pms,wt**—frequent
Lythrum salicaria L., 1998–C, **Pwt**—rare

MALVACEAE
Alcea rosea L., 1927–C, **Our**—rare
Abutilon theophrasti Medicus, B[*A. avicennae* Gaertn.], H[*A. avicennae* Gaertn.], 1881–C, **O**—common
Callirhoe involucrata (Nutt. ex T. & G.) Gray, 1890–1969
Hibiscus laevis All., 1940–C, **Wmd**—rare
Hibiscus trionum L., H, 1881–C, **O**—frequent
Malva neglecta Wallr., 1895–C, **Our,rc,cr**—frequent
Malva rotundifolia L., B, H, 1907–C, **Our**—infrequent
Malva sylvestris L., B, H, 1881–1881
+*Napaea dioica* L., 1998–C, **Twf**—rare
Sida spinosa L., 1998–C, **Our,cr**—rare

MENISPERMACEAE
Menispermum canadense L., B, H, 1907–C, **Tmf,wf,ed**—rare

MORACEAE
Cannabis sativa L., B, H, 1881–C, O—frequent
**Humulus japonicus* Sieb., 1944–C, Ted—rare
Humulus lupulus L., B, H, 1881–C, Twd,ed—frequent
**Maclura pomifera* (Raf. ex Sarg.) Schneider, 2000–C, Twf—rare
**Morus alba* L., 1960–C, Twf,ed; Our,rw,ps—common
Morus rubra L., B, H, 1895–C, Tmf,wf—infrequent

NYCTAGINACEAE
Mirabilis albida (Walter) Heimerl, 1992–C, Ted; Pdr—rare
Mirabilis hirsuta (Pursh) MacM., 1892–C, Ted; Pdr—rare
Mirabilis nyctaginea (Michx.) MacM., H[*Oxybaphus nyctagineus* (Michx.) Sweet], 1897–C, O—common

NYMPHAEACEAE
Nymphaea tuberosa Paine, B[*N. odorata* Ait.]
Nuphar luteum (L.) Smith, B[*N. advena* Ait.]

OLEACEAE
Fraxinus americana L., B, H, 1924–C, Tdf,mf—frequent
Fraxinus nigra Marsh, H[*F. sambucifolia* Lam.], 1914–C, Tmf,wf—infrequent
Fraxinus pensylvanica Marsh., H[*F. viridis* Michx.f. var. *pubescens*], 2000–C, Twf—rare
Fraxinus pensylvanica Marsh. var. *lanceolata* (Borkh.) Sarg., H[*F. viridis* Michx.f.], 1896–C, Tmf,wf; Our,rw—common
**Ligustrum obtusifolium* Siebold & Zucc., 1999–C, Ted—rare
**Ligustrum vulgare* L., 1909–C, Wrp; Ops—rare

ONAGRACEAE
Calylophus serrulatus (Nutt.) Raven, B[*Oenothera serrulata* Nutt.], H[*Oenothera serrulata* Nutt.], 1895–C, Pdr—rare
Circaea lutetiana L. ssp. *canadensis* (L.) Ascherson & Magnus, B[*C. lutetiana* L.], H[*C. lutetiana* L.], 1895–C, Tmf,wf—common
Epilobium ciliatum Raf., H[*E. adenocaulum* Haussku.]
Epilobium coloratum Biehler, B, H, 1897–C, Tes; Pwt; Wrp—frequent
Epilobium leptophyllum Raf., H[*E. lineare* Muhl.]
Gaura biennis L., 1923–C, Orw—rare
Gaura parviflora Douglas, 1892–1988
Ludwigia polycarpa Short & Peter, B, H, 1897–1907
Oenothera laciniata Hill, 1963–1963
Oenothera parviflora L., 1999–C, Orc,of—infrequent
Oenothera rhombipetala Nutt. ex T. & G., 1924–1924
Oenothera villosa Thunb., B[*O. biennis* L.], H[*O. biennis* L.], 1881–C, O—common

OROBANCHACEAE
Orobanche uniflora L., H[*Aphyllon uniflorum* (L.) Gray], n.d.[1800's]–n.d.

OXALIDACEAE
Oxalis dillenii Jacq., 1897–C, Our—infrequent
Oxalis stricta L., B, H[*O. corniculata* L.], 1881–C, O—common
Oxalis violacea L., B, H, 1881–C, P—rare

PAPAVERACEAE
**Chelidonium majus* L., 1958–C, Twf—rare
Corydalis micrantha (Engelm.) Gray, 1890–C, Orc—infrequent
Dicentra cucullaria (L.) Bernh., B, H[*Dyclyptra cucullaria* (L.) DC.], 1881–C, Tmf—frequent
**Fumaria officinalis* L., 1999–C, Orc—rare
Sanguinaria canadensis L., B, H, 1881–C, Tmf—frequent

PHRYMACEAE
Phryma leptostachya L., H, 1894–C, T—common

PHYTOLACCACEAE
Phytolacca americana L., 1907–C, Our—rare

PLANTAGINACEAE
Plantago aristata Michx., 1896–1968
**Plantago lanceolata* L., B, H, 1890–C, Our,ps—common
**Plantago major* L., B, H, 1961–C, Our—frequent
Plantago patagonica Jacq., 1998–C, Orc—rare
Plantago rugelii Dcne., H, 1909–C, Pdr,ms; O—common
Plantago virginica L., 1924–1955

PLATANACEAE
Platanus occidentalis L., B, H, 1897–C, Twf—frequent

POLEMONIACEAE
Phlox divaricata L., B[*P. procumbens* Lehm.], H, 1881–C, Tmf,wf—common
Phlox maculata L., H, 1907–1907
**Phlox paniculata* L., 1909–C, Our,rw—rare
Phlox pilosa L., B, H, 1881–C, P—frequent
Polemonium reptans L., H, 1890–C, Tmf; Ops—infrequent

POLYGALACEAE
Polygala incarnata L., B, H, 1907–1907
Polygala sanguinea L., B, H, 1907–1907
Polygala senega L., H, 1898–1898
Polygala verticillata L., B, H, 1896–C, Twd,es; Pms—rare

POLYGONACEAE
Polygonum achoreum Blake, 1998–C, Orw,cr—frequent
Polygonum amphibium L. var. *emersum* Michx., B[*P. amphibium* L. var. *terrestre* Willd.], H[*P. amphibium* L.; *P. muhlenbergii* Wats.], 1897–C, Pwt; Wez—common
Polygonum amphibium L. var. *stipulaceum* (Coleman) Fern., H[*P. hartwrightii* Gray], 1947–1947
**Polygonum aviculare* L., B, H, 1897–C, O—common
**Polygonum convolvulus* L., B, H, 1892–C, Ocr—frequent
**Polygonum cuspidatum* Sieb. & Zucc., 1947–C, Twf,ed; Our—rare
Polygonum erectum L., H, 1895–C, O—common
Polygonum hydropiper L., B, H, 1888–C, Twf; Wrp,md—frequent
Polygonum lapathifolium L., H[*P. lapathifolium* L. var. *incarnatum* (Ell.) Watson], 1877–C, Pwt; Wez,rp; Ocr—frequent
**Polygonum orientale* L., B, H, 1902–1928
Polygonum pensylvanicum L. var. *laevigatum* Fern., B[*P. pennsylvanicum* L.], H[*P. pennsylvanicum* L.], 1903–C, Pwt; Wez,rp; Ocr—common
**Polygonum persicaria* L., B, H, 1888–C, O—common
Polygonum punctatum Ell., H[*P. acre* HBK.], 1907–C, Pwt; Wrp—frequent
Polygonum ramosissimum Michx., B, H, 1902–C, Orc—rare
Polygonum scandens L., H[*P. dumetorum* L. var. *scandens* (L.) Gray], 1890–C, Twf,ed; Our—common
Polygonum virginianum L., B, H, 1897–C, Tmf,wf—common
**Rumex acetosella* L., B, H, 1897–C, Our—frequent
Rumex altissimus Wood, H, 1897–C, Pwt; Wez,rp; O—common
**Rumex crispus* L., B, H, 1888–C, Pms,wt; Wez,rp,md; O—common
Rumex mexicanus Meisner, 1904–C, Twf; Pwt—rare
**Rumex obtusifolius* L., 1912–1912
Rumex orbiculatus Gray, B[*Rumex brittanica* L.]
**Rumex patientia* L., 1937–C, Ops—rare

Rumex stenophyllus* Ledeb., 1999–C, **Pwt; Oof—infrequent
Rumex verticillatus L., H, 1999–C, **Twf**—rare

PORTULACACEAE
Claytonia virginica L., B, H, 1893–C, **Tmf,wf**—common
Portulaca oleracea* L., H, 1888–C, **Our—common

PRIMULACEAE
Androsace occidentalis L., 1998–C, **Our,rc**—rare
Lysimachia ciliata L., B, H[*Steironema ciliatum* (L.) Raf.], 1988–C, **Twd,ed; Pms; Wrp; Orw,of**—frequent
Lysimachia hybrida Michx., H[*Steironema lanceolatum* (Walt.) Gray var. *hybridum* (Michx.) Gray], 1907–C, **Oof**—rare
Lysimachia nummularia* L., 1892–C, **Twf—rare
Lysimachia quadriflora Sims, B[*L. longifolia* Pursh.], H[*Steironema quadriflorum* (Sims)], 1878–C, **Pms,wt**—infrequent
Lysimachia terrestris (L.) BSP., 1907–1907
Lysimachia thyrsiflora L., B, H, 1998–C, **Pwt; Wez**—rare

RANUNCULACEAE
Actaea pachypoda Ell., B[*A. alba* Bigel.], H[*A. alba* (L.) Bigel.], 1881–1890
Actaea rubra (Aiton) Willd., H[*A. spicata* L. var. *rubra* Ait.], 1907–C, **Tmf**—rare
Anemone canadensis L., B[*A. pennsylvanica* L.], H[*A. pennsylvanica* L.], 1881–C, **Ted; Pwt; Orw**—common
Anemone caroliniana Walter, B, H, 1894–1942
Anenome cylindrica Gray, B, H, 1897–C, **Twd; Pdr**—frequent
Anenome quinquefolia L., B[*A. nemorosa* L.], H[*A. nemorosa* L.], 1881–C, **Tdf,mf**—frequent
Anenome virginiana L., H, 1895–C, **Tdf,mf,ed; Pdr**—frequent
Aquilegia canadensis L., B, H, 1881–C, **T**; Our—common
Caltha palustris L., B, H, 1887–C, **Wsp**—rare
Clematis pitcheri T. & G., B[*C. viorna* L.], H, 1902–C, **Ted; Orc**—infrequent
Clematis virginiana L., B, H, 1881–C, **Twf,ed; Orw**—infrequent
Consolida ambigua* (L.) Ball & Heywood, 1902–C, **Wrp—rare
Delphinium tricorne Michx., 1968–1968
Delphinium virescens Nutt., B[*D. azureum* Michx.], H[*D. azureum* Michx.], 1897–C, **Pdr; Ops**—infrequent
Hepatica nobilis P. Miller var. *acuta* (Pursh) Steyerm., B[*H. acutiloba* DC.], H[*Anemone hepatica* L. var. *acuta* (Pursh)], 1881–C, **Tmf**—frequent
Isopyrum biternatum (Raf.) T. & G., B, H, 1881–C, **Tmf,wf**—frequent
Pulsatilla patens (L.) P. Miller ssp. *multifida* (Pritz.) Zemels, H[*Anemone patens* L. var. *hirsutissima* (Pursh)], 1898–1919
Ranunculus abortivus L., H, 1892–C, **Tmf,wf**; Our—common
Ranunculus cymbalaria Pursh, B, H, 1907–1907
Ranunculus flabellaris Raf., B[*R. multifidus* Pursh.], H[*R. lacustris* Beck & Tracy], 1881–C, **Wsz**—rare
Ranunculus pensylvanicus L.f., 2000–C, **Wrp**—rare
Ranunculus repens* L., B, 1994–C, **Orw—rare
Ranunculus sceleratus L., B, 1998–C, **Twf; Wrp**—frequent
Ranunculus septentrionalis Poiret, H, 1881–C, **Tmf,wf**—frequent
Ranunculus testiculatus* Crantz, 1999–C, **Orc—rare
Thalictrum dasycarpum Fischer & Ave-Lall., B[*T. purpurascens* L.; *T. cornuti* L.], H[*T. purpurascens* L.], 1894–C, **Twf; Pms,wt; Orw**—frequent
Thalictrum dioicum L., B, H, 1892–C, **Tmf,wf**—frequent
Thalictrum thalictroides (L.) Eames & Boivin, B[*T. anemonoides* Michx.], H[*Anemonella thalictroides* (L.) Spach], 1887–C, **Tdf,mf**—frequent

RHAMNACEAE
Ceanothus americanus L. var. *pitcheri* T. & G., B, H, 1888–C, **Twd; Pdr,ms**—rare
Ceanothus herbaceus Raf. var. *pubescens* (T. & G.) Shinners, B[*C. ovatus* Bigelow], H[*C. ovatus* Desf. var. *pubescens* Torr. & Gray], 1881–1907
Rhamnus cathartica* L., 1961–C, **T; Our,rw—common
Rhamnus utilis* Decne., 1999–C, **Tes, wf—frequent

ROSACEAE
**Agrimonia eupatoria* L., B, H, 1907–1907
Agrimonia gryposepala Wallr., 1888–C, **Tdf,wd,ed**—frequent
Agrimonia pubescens Wallr., 1881–C, **Tdf**—infrequent
Agrimonia striata Michx., 1894–1907
Amelanchier arborea (Michx.) Fern., B[*A. canadensis* (L.) Torr. & Gray], H[*A. canadensis* (L.) Torr. & Gray], 1882–C, **Tdf,mf,wd,ed**—infrequent
Amelanchier humilis Wieg., 1875–1914
Cotoneaster multiflora* Bunge, 1999–C, **Twd—rare
Crataegus calpodendron (Ehrh.) Medicus, 1891–C, **Twd,ed; Ops**—rare
Crataegus mollis (T. & G.) Scheele, H[*C. coccinea* L. var. *mollis* Torr. & Gray], 1884–C, **Twf,wd,ed; Wrp; Ops**—frequent
Crataegus punctata Schrader ex Link, B[*C. tomentosa* L. var. *punctata* Gray], H, 1893–C, **Twd,ed**—infrequenr
Crataegus succulenta Schrader ex Link, 1999–C, **Ops**—rare
Duchesnea indica* (Andrews) Focke, 1994–C, **Tmf,wf; Our—infrequent
Fragaria vesca L. var. *americana* Porter, 1929–C, **Twd**—rare
Fragaria virginiana Duchesne, B, H[*F. virginiana* Duch. var. *illinoensis* (Prince) Gray], 1881–C, **T; P; O**—common
Geum aleppicum Jacq. var. *strictum* (Aiton) Fern., 1998–C, **P; Orc**—rare
Geum canadense Jacq., B[*G. album* Gmel.], H[*G. album* Gmel.], 1883–C, **Tmf,df,ed; Pms,wt**—common
Geum laciniatum Murray, H[*G. virginianum* L.], 1889–1897
Malus ioensis (Wood) Britton, B[*Pyrus coronaria* L.], H[*Pirus coronaria* L.], 1883–C, **Twd,ed; Pdr; Ops**—infrequent
Malus sylvestris* (L.) P. Miller, 1899–C, **Twd,ed; O—frequent
+Physocarpus opulifolius (L.) Maxim., 1998–C, **Orw,of**—rare
Potentilla argentea* L., 1948–C, **Our,ps—rare
Potentilla arguta Pursh, B, H, 1894–C, **Pdr,ms**—infrequent
Potentilla norvegica L., B, H, 1888–C, **Pdr,ms; Orw,rc,of**—common
Potentilla recta* L., 1933–C, **O—frequent
Potentilla rivalis Nutt., H[*P. rivalis* Nutt. var. *pentandra* (Engel.) Watson], 1889–1889
Potentilla simplex Michx., B[*P. canadensis* L.], H[*P. canadensis* L.], 1897–C, **Twd,ed; Pms,wt**—frequent
Prunus americana Marsh., B, H, 1887–C, **Ted; Pwt; Orw,of**—common
Prunus pensylvanica L.f., B, H, 1887–1887
Prunus mexicana S. Watson, 1998–C, **Ted; Wrp**—frequent
Prunus serotina Ehrh., B, H, 1881–C, **Tdf,mf,ed; Orw**—common
Prunus tomentosa* Thunb., 1998–C, **Twd,ed; Our—infrequent
Prunus virginiana L., B, H, 1887–C, **Tdf,mf,wd,ed; Orw**—common
Rosa arkansana Porter var. *suffulta* (Greene) Cockerell, H[*Rosa blanda* Ait. var. *arkansana* (Porter) Best], 1902–C, **Pdr,ms; Orw**—frequent
Rosa blanda Aiton, B, 1895–C, **Ted; Pdr,ms; Orw**—frequent
Rosa carolina L., 2000–C, **Ted; Pms; Orw**—frequent
Rosa eglanteria* L., 1926–C, **Twd—rare

Rosa multiflora* Thunb. ex Murray, 2000–C, **Twd,ed; Orw,ps—common
Rosa × *rudiuscula* Greene, 1928–1933
Rosa setigera Michx., 1999–C, **Ted**—rare
Rubus ablatus Bailey, 1924–C, **Ted; Orw**—infrequent
Rubus allegheniensis Porter ex Bailey, 1989–C, **Ted; Wrp; Orw**—infrequent
Rubus caesius* L., 1998–C, **T; Wrp; Oof—rare
Rubus frondosus Bigel., 1993–C, **Ted**—rare
Rubus idaeus L. var. *strigosus* (Michx.) Maxim., B[*R. strigosus* Michx.], 1924–C, **Tes**—rare
Rubus occidentalis L., B, H, 1904–C, **T; P; O**—common
Rubus parvifolius* L., 1888–C, **Tmf,wf,ed; Orw—frequent
Rubus roribaccus (L.H. Bailey) Rydb. in Britton, 1924–1931

RUBIACEAE
Cephalanthus occidentalis L., B, H, 1870–1889
Galium aparine L., H, 1871–C, **T**—common
Galium boreale L., 1998–C, **Tdf,mf**—rare
Galium circaezans Michx., 2000–C, **Tdf,wd**—rare
Galium concinnum T. & G., H, 1873–C, **Tmf,wf**—common
Galium obtusum Bigelow, 1873–C, **Pwt**—frequent
Galium tinctorium L., H[*G. trifidum* L. var. *latifolium* Torr.]
Galium trifidum L., B, H
Galium triflorum Michx., H, 1887–C, **Tmf,wf**—common

RUTACEAE
Ptelea trifoliata L., 1998–C, **Ted**—rare
Zanthoxylum americanum P. Miller, B, H, 1883–C, **T**—common

SALICACEAE
Populus alba* L., 1913–C, **Our,rw—infrequent
Populus deltoides Bartram ex Marsh., B[*P. angulata* Ait.; *P. monilifera* Ait.], H[*P. monilifera* Ait.], 1878–C, **Tmf,wf; Our,rw**—common
Populus grandidentata Michx., H, 1906–C, **Tdf,wd,ed**—infrequent
Populus tremuloides Michx., B, H, 1906–1914
Salix amygdaloides Andersson, 1891–C, **Twf; Wrp; Orw**—frequent
Salix bebbiana Sarg., 1874–C, **Wsp**—rare
Salix discolor Muhl., H, 1874–C, **Pwt; Wrp; Orw**—infrequent
Salix exigua Nutt. ssp. *interior* (Rowlee) Cronq., H[*S. longifolia* Muhl.], 1872–C, **Twf,ed; Pwt; Wrp,md; Orw**—common
Salix fragilis* L., 1913–C, **Wrp; Orw—rare
Salix humilis Marsh., H, 1874–1937
Salix nigra Marsh., H, 1901–C, **Twf; Pwt; Wrp; Orw**—frequent
Salix petiolaris Smith, 1874–1938
Salix rigida Muhl., H[*S. cordata* Muhl.], 1874–C, **Twf,ed; Pwt,rp; Orw**—common

SANTALACEAE
Comandra umbellata (L.) Nutt., B, H, 1882–C, **Twd; Pdr,ms**—frequent

SAXIFRAGACEAE
Heuchera richardsonii L. var. *hirsuticaulis* (Wheelock) Rosend., Butters & Lak., B[*H. hispida* Pursh], H[*H. hispida* Pursh.], 1884–C, **Tdf,ms,wd,es; Pms**—infrequent
Mitella diphylla L., 1897–1897
Parnassia glauca Raf., B[*P. caroliniana* Michx.]
Penthorum sedoides L., B, H, 1892–C, **Twf; Wrp,md; Orw**—infrequent
Ribes americanum P. Miller, B[*R. floridum* L.], H[*R. floridum* L'Her.], 1881–C, **Pwt; Wrp,sp; Orw**—rare
Ribes cynosbati L., H, 1914–C, **Tmf**—rare
Ribes missouriense Nutt. ex T. & G., H[*R. gracile* Michx.], 1887–C, **T; Ops**—common

SCROPHULARIACEAE
Agalinis purpurea (L.) Pennell, B[*Gerardia purpurea* L.], 1907–1907
Agalinis tenuifolia (Vahl) Raf., B[*Gerardia tenuifolia* Vahl.], H[*Gerardia tenuifolia* Vahl.], 1897–C, **Pwt**—infrequent
Castilleja sessiliflora Pursh, B, H, 1886–1927
Chaenorrhinum minus* (L.) Lange, 1943–C, **Orc—infrequent
Chelone glabra L., 1998–C, **Wsp**—rare
Dasistoma macrophylla (Nutt.) Raf., 1942–C, **Ted**—rare
Linaria vulgaris* Hill, H, 1881–C, **Our,rw—rare
Lindernia anagallidea (Michx.) Pennell, 1999–C, **Wmd**—rare
Lindernia dubia (L.) Pennell, H[*Ilysanthes gratioloides* (L.) Bentham], 1883–C, **Wrp,md; Oof**—frequent
Mimulus ringens L., B, H, 1884–C, **Wrp,md**—frequent
Pedicularis canadensis L., B, H, 1881–C, **Tmf,wd**—infrequent
Pedicularis lanceolata Michx., B, H, 1897–C, **Pwt**—rare
+Penstemon digitalis Nutt., 1927–C, **Ted; Oof**—rare
Penstemon tubiflorus Nutt., 1951–1951
Scrophularia lanceolata Pursh, 1927–1927
Scrophularia marilandica L., B[*S. nodosa* L.], H[*S. nodosa* L. var. *marilandica* (L.) Gray], 1883–C, **Tmf,wf,wd,ed**—frequent
Tomanthera auriculata (Michx.) Raf., B[*Gerardia auriculata* Michx.], H[*Gerardia auriculata* Michx.], 1883–C, **Pwt**—rare
Verbascum blattaria* L., H, 1889–C, **Twd,ed—rare
Verbascum thapsus* L., B, H, 1888–C, **O—common
Veronica anagallis-aquatica* L., B[*V. anagallis* L.], H[*V. anagallis* L.], 1999–C, **Wsp,rp—rare
Veronica arvensis* L., H, 1998–C, **Our—common
Veronica catenata Pennell, 1883–C, **Wrp,sp**—rare
Veronica peregrina L., B, H, 1873–C, **Twf; Wrp; Ocr**—common
Veronica polita* Fries, 1998–C, **Orw—rare
Veronicastrum virginicum (L.) Farw., B[*Veronica virginica* L.], H[*Veronica virginica* L.], 1888–C, **Tmf,wd,ed; Pms,wt**—frequent

SIMAROUBACEAE
Ailanthus altissima* (P. Miller) Swingle, 2000–C, **Our,rw—infrequent

SOLANACEAE
Datura stramonium* L., B, H[=; *Datura tatula* L.], 1881–C, **Orc—rare
Datura wrightii* Regel, 2000–C, **Wrp—rare
Lycium halimifolium* P. Miller, 1999–C, **Our—rare
**Nicandra physalodes* (L.) Gaertner, 1906–1957
Petunia axillaris* (Lam.) BSP., 1932–C, **Our—rare
Physalis heterophylla Nees, 1889–C, **P; Orw,rc,of**—frequent
**Physalis hispida* (Waterfall) Cronq., H[*P. lanceolata* Michx.], 1942–1942
**Physalis pubescens* L. var. *integrifolia* (Dunal) Waterfall, H[*P. pubescens* L.], 1932–1942
Physalis virginiana P. Miller, B[*P. pennsylvanica* L.], H[=; *P. philadelphica* Lam.], 1881–C, **P; Orw**—common
Solanum americanum P. Miller, B[*S. nigrum* L.], H[*S. nigrum* L.], 1881–C, **O**—common
Solanum carolinense L., H, 1890–C, **O**—frequent
Solanum dulcamara* L., 1914–C, **Twf; Wrp; Our,rw—infrequent
Solanum rostratum* Dunal, 1902–C, **Wrp; Our,rw,rc,of—infrequent

STAPHYLEACEAE
Staphylea trifolia L., B, H, 1881–C, **Tmf**—infrequent

TILIACEAE
Tilia americana L., B, H, 1897–C, **Tmf,wf**—common

ULMACEAE
Celtis occidentalis L., B, H, 1897–C, **Twf**—common
Ulmus americana L., B, H, 1895–C, **Tmf,wf; Our**—common
Ulmus pumila* L., 1973–C, **Ted; Our,rw—common
Ulmus pumila* L. × *U. americana* L., 2000–C, **Ted—rare
Ulmus pumila* L. × *U. rubra* Muhl., 2000–C, **Ted; Our,rw—infrequent
Ulmus rubra Muhl., B[*U. fulva* Michx.], H[*U. fulva* Michx.], 1895–C, **Tmf,wf**—common
Ulmus thomasii Sarg., 1902–1911

URTICACEAE
Boehmeria cylindrica (L.) Sw., 1999–C, **Twf**—rare
Laportea canadensis (L.) Wedd., B[*L. canadensis* Gaudich.], H, 1897–C, **Twf**—common
Parietaria pensylvanica Muhl. ex Willd., H, 1897–C, **Twd; Our,cr**—common
Pilea pumila (L.) Gray, B, H, 1907–C, **Twf; Wsp**—frequent
Urtica dioica L., H[*U. gracilis* Ait.], 1942–C, **Twf; Orw,of**—frequent

VERBENACEAE
Phyla lanceolata (Michx.) Greene, 1907–C, **Twf; Wrp**—infrequent
Verbena bracteata Lag. & Rodr., B[*V. bracteosa* Michx.], H[*V. bracteosa* Michx.], 1882–C, **Our**—common
Verbena canadensis (L.) Britton, H[*V. aubletia* L.f.], 2000–C, **Orc**—rare
Verbena × *deamii* Moldenke, 1999–C, **Orc**—rare
Verbena × *engelmannii* Moldenke, 1909–C, **Wrp; Ops**—rare
Verbena hastata L., B, H, 1882–C, **Pwt; Wrp; Orw**—frequent
Verbena × *moechina* Moldenke, 1894–C, **Orc**—rare
Verbena × *perriana* Moldenke, 1896–1896
Verbena × *rydbergii* Moldenke, 1902–C, **Wrp; Orc**—infrequent
Verbena simplex Lehm., 1952–1952
Verbena stricta Vent., B, H, 1880–C, **Pdr; Orc,ps**—common
Verbena urticifolia L., B, H, 1882–C, **Pwt; Orc,of**—frequent

VIOLACEAE
Viola arvensis* Murray, B, 1998–C, **Orw—rare
+*Viola canadensis* (L.) Britton, 1903–C, **Our**—rare
Viola missouriensis Greene, H[*V. palmata* L. var. *obliqua* (Hill)], 1932–C, **Twf; Our**—rare
Viola nephrophylla Greene, 1907–1931
Viola pedata L., B, H, 1884–1947
Viola pedatifida G. Don, B[*V. delphinifolia* Nutt.], H[*V. pinnatifida* Don], 1881–C, **Pdr**—infrequent
Viola pratincola Greene, H[*V. palmata* L. var. *obliqua* (Hill)], 1897–C, **Our**—rare
Viola pubescens Aiton, B, H, 1881–C, **Tmf,wf**—frequent
Viola rafinesquii Greene, 1999–C, **Our**—rare
Viola sororia Willd., B[*V. cucullata* Ait.], H[*V. palmata* L. var. *obliqua* (Hill)], 1891–C, **Tmf,wf; Our**—common
Viola sororia Willd. × *V. pedatifida* G. Don, 1999–C, **Pdr; Ops**—rare
Viola tricolor* L., 1999–C, **Our—rare
Viola viarum Pollard, H[*V. palmata* L.], 1897–C, **Pdr**—rare

VITACEAE
Ampelopsis brevipedunculata* (Maxim.) Trautv., 2000–C, **Our—rare
Parthenocissus quinquefolia (L.) Planchon, B[*Ampelopsis quinquefolia* (L.) Michx.], H[*Ampelopsis quinquefolia* (L.) Michx.], 1897–C, **T; Wrp; Orw**—frequent
Parthenocissus tricuspidata* (Sieb. & Zucc.) Planchon, 1999–C, **Our—rare
Parthenocissus vitacea (Knerr) A.S. Hitchc., B[*Ampelopsis quinquefolia* (L.) Michx.], H[*Ampelopsis quinquefolia* (L.) Michx.], 1897–C, **T; Pms; Orw**—common
Vitis riparia Michx., H, 1881–C, **T; Orw**—common

ZYGOPHYLLACEAE
**Tribulus terrestris* L., 1940–1962

(MONOCOTS)

ALISMATACEAE
Alisma plantago-aquatica L., B[*A. plantago* L. var. *americanum*], H[*A. plantago* L.], 1907–C, **Wez,md**—infrequent
Echinodorus cordifolius (L.) Griseb., 1998–C, **Wmd**—rare
Sagittaria australis (J.G. Smith) J.K. Small, 1907–C, **Wez,sz; Orw**—rare
Sagittaria brevirostra Mack. & Bush, B[*S. variabilis* Engelm.], H[*S. variabilis* Engelm.], 1871–C, **Wez,sz,rp; Orw**—infrequent
Sagittaria graminea Michx., B, H, 1883–1889
Sagittaria rigida Pursh, H[*S. heterophylla* Pursh]

ARACEAE
Acorus calamus L., H, 2000–C, **Wez**—rare
Arisaema dracontium (L.) Schott, B, H, 1883–C, **Tdf,mf,wf**—infrequent
Arisaema triphyllum (L.) Schott, B[*A. triphyllum* Torr.], H, 1881–C, **Tmf,wf**—common

COMMELINACEAE
Commelina communis* L., 1925–C, **Our,rc—infrequent
Tradescantia bracteata Small, B[*T. virginica* L.], H[*T. virginiana* L.], 1887–C, **Pms,wt; Orw**—infrequent

CYPERACEAE
Bulbostylis capillaris (L.) C.B. Clarke, 1959–1966
Carex aggregata Mack., 1999–C, **Twd**—rare
Carex albursina Sheldon, H[*C. laxiflora* Lam. var. *latifolia* Boott.], 1930–C, **Tmf**—rare
Carex amphibola Steudel var. *turgida* Fern., B[*C. grisea* Wahl.], H[*C. grisea* Wahl.], 1898–C, **Tmf,wf**—common
Carex annectens (Bickn.) Bickn. var. *xanthocarpa* (Bickn.) Wieg., C, **Pwt**—infrequent
Carex atherodes Sprengel, H[*C. trichocarpa* Muhl. ex Willd. var. *imberbis* Gray; *C. trichocarpa* Muhl. ex Willd. var. *aristata* (R. Br.) Bailey], 1938–C, **Pwt; Wez**—frequent
Carex atherodes Sprengel × *C. trichocarpa* Schkuhr, 1999–C, **Wez**—rare
Carex bebbii (Bailey) Fern., 1998–C, **Pwt**—infrequent
Carex bicknellii Britton, H[*C. straminea* Willd. var. *alata* (Torr.) Bailey], 1898–C, **P**—frequent
Carex blanda Dewey, 1897–C, **T**—common
Carex brevior (Dewey) Mack. ex Lunell, H[*C. straminea* Willd. var. *festucacea* (Willd.)], 1928–C, **Ted; P**—common
Carex buxbaumii Wahl., H[*Carex fusca* All.], 1923–C, **Pwt**—rare
Carex cephalophora (Dewey) Dewey, B[*C. cephalophora* Muhl.], H, 1898–C, **Tdf,mf**—frequent
Carex conjuncta Boott, H, n.d.[1890's]–C, **Twf**—infrequent

Carex convoluta Mack., B[*C. rosea* Schk.], 1902–C, **Tdf,mf**—common
Carex crawei Dewey, 1999–C, **Pms; Orw**—rare
Carex crawfordii Fern., 1999–C, **Pwt**—rare
Carex cristatella Britton, H[*C. tribuloides* Wahl. var. *cristata* (Schwein.) Bailey], n.d.[1880's]–C, **Pwt; Orw**—frequent
Carex davisii Schwein. & Torrey, H, 1895–C, **Twf,ed; Wrp**—frequent
Carex eburnea Boott, H, n.d.[1800's]–C, **Tdf,es**—rare
Carex frankii Kunth, 1994–C, **Pwt**—rare
Carex gravida Bailey, H[*C. gravida* Bailey var. *laxifolia* Bailey], 1897–C, **Ted; Orw**—frequent
Carex grayi Carey, B[*C. folliculata* L.], H, 1897–C, **Twf**—common
Carex haydenii Dewey, 1993–C, **Pwt**—infrequent
Carex hirtifolia Mack., H[*C. pubescens* Muhl. in Willd.], 1902–C, **Tmf**—infrequent
Carex hitchcockiana Dewey, 1992–C, **Tmf**—infrequent
Carex hystericina Muhl. ex Willd., B, H[*C. lurida* Wahl. (ISC specimen misidentified)], 1886–C, **Wsp**—rare
Carex jamesii Schwein., 1930–C, **Tdf,mf**—frequent
Carex lacustris Willd., H[*C. riparia* W. Curtis], 1880–C, **Pwt; Orw**—common
Carex laeviconica Dewey, H[*C. trichocarpa* Muhl. var. *laeviconica* (Dewey)], 1878–C, **Twf; Pwt; Orw**—frequent
Carex lanuginosa Michx., B, H, 1879–C, **Pwt; Orw,of**—common
Carex lasiocarpa Ehrh. var. *americana* Fern., H[*C. filiformis* L.], n.d.[1880's]–n.d.
Carex leavenworthii Dewey, 1999–C, **Ted; Ops**—rare
Carex lupulina Muhl. ex Willd., H, 1880–C, **Twf**—rare
Carex meadii Dewey, B[*C. straminea* Schk. var. *meadii*], H[*C. tetanica* Schkuhr var. *meadii* (Dewey) Bailey], 1898–C, **Pdr,ms**—frequent
Carex mesochorea Mack., 1998–C, **Ops**—rare
Carex molesta Mack., 1897–C, **Pwt**—frequent
Carex muskingumensis Schwein., H, 1880–1887
Carex normalis Mack., 1877–C, **Tmf**—infrequent
Carex oligocarpa Willd., 1896–C, **Tmf**—frequent
Carex pensylvanica Lam., H, 1891–C, **Tdf,mf**—common
Carex prairea Dewey, 1938–C, **Pwt**—rare
Carex projecta Mack., 1890–C, **Tmf**—rare
Carex sartwellii Dewey, B[*C. disticha* Huds.], H, 1994–C, **Pwt**—infrequent
Carex sparganioides Muhl. ex Willd., B, H, 1992–C, **Tmf**—infrequent
Carex sprengelii Dewey, B[*C. longirostris* Torr.], H[*C. longirostris* Torr.], 1879–C, **T**—common
Carex stipata Muhl. ex Willd., 1962–C, **Wsp**—rare
Carex stricta Lam., B, H, 1998–C, **Pwt; Wsp**—infrequent
Carex suberecta (Olney) Britton, n.d.–C, **Pwt**—infrequent
Carex tenera Dewey, 1888–C, **Twf**—rare
Carex tetanica Schkuhr, 1993–C, **Pwt**—rare
Carex tribuloides Wahl, B[*C. lagopodioides* Schk.], 1895–C, **Pwt**—infrequent
Carex trichocarpa Schkuhr, H, 1999–C, **Orw**—rare
Carex vesicaria L., C, **Pwt; Wez**—frequent
Carex vulpinoidea Michx., B, H, n.d.[1880's]–C, **Pwt; Orw**—common
Cyperus acuminatus Torrey & Hooker, 1998–C, **Orw,rc**—infrequent
Cyperus aristatus Rottb., H, 1897–C, **Wrp; Our,rc**—frequent
Cyperus diandrus Schrank, H
Cyperus erythrorhizos Muhl., H, 1998–C, **Wrp**—rare
Cyperus esculentus L., H, 1909–C, **Wrp; Our,rc**—common
Cyperus filiculmis Vahl., H, 1993–C, **Ted**—rare
Cyperus odoratus L. var. *squarrosus* (Britton) Gilly, B[*C. michauxianus* Schultes.], 1920–C, **Wrp**—common
Cyperus rivularis Kunth, H[*C. diandrus* Torr. var. *castaneus* (Pursh) Torr.], 1897–C, **Wrp; Orw**—frequent
Cyperus schweinitzii Torrey, H, 1934–1934
Cyperus strigosus L., H[=; *C. strigosus* L. var. *robustior* Kunth], 1881–C, **Wrp; Our,rw**—frequent
Eleocharis acicularis (L.) R. & S., B[*E. acicularis* R. Br.], H
Eleocharis engelmannii Steudel, 1998–C, **Oof**—rare
Eleocharis erythropoda Steudel, B[*E. palustris* R. Br.], H[*E. palustris* (L.) R. Br.], 1998–C, **Pwt; Wez; Orw**—common
Eleocharis macrostachya Britton, 1998–C, **Pwt; Wez; Orw**—infrequent
Eleocharis obtusa (Willd.) Schultes, 1998–C, **Orw**—infrequent
Eriophorum angustifolium Honck., B[*Eleocharis polystachyon* L.], H[*Eleocharis polystachyon* L.]
Hemicarpha micrantha (Vahl) Pax, H, 1951–C, **Wrp**—infrequent
Scirpus acutus Muhl. ex Bigelow, 1974–C, **Pwt**—rare
Scirpus americanus Pers., H[*S. pungens* Vahl.], 1897–1897
Scirpus atrovirens Willd., B[*S. atrovirens* Muhl.], H, 1873–C, **Pwt; Orw,of**—common
Scirpus fluviatilis (Torrey) Gray, H, 2000–C, **Wez**—frequent
Scirpus pendulus Muhl., H[*Eriophorum lineatum* (Michx.) Benth. & Hook.], 1938–C, **Pwt; Orw,of**—frequent
Scirpus validus Vahl var. *creber* Fern., B, H[*S. lacustris* L.], 1881–C, **Pwt; Wez**—frequent

DIOSCOREACEAE
Dioscorea villosa L., B, H, 1898–C, **Tmf**—infrequent

HYDROCHARITACEAE
Elodea canadensis Michx., H
Elodea nuttallii (Planchon) St. John, 1886–C, **Wsz**—rare

IRIDACEAE
Belamcanda chinensis* (L.) DC., H, n.d.[1800's]–C, **Tmf,wd—rare
Iris shrevei Small, B[*I. versicolor* L.], H[*I. versicolor* L.], 1881–C, **Pwt**—frequent
Sisyrinchium campestre Bickn., B[*S. bermudiana* L. var. *anceps*; *S. bermudiana* L.var. *albidum*; *S. bermudiana* L. var. *mucronatum*], H[*S. angustifolium* Mill.], 1877–C, **Pdr,ms; Oof**—frequent

JUNCACEAE
Juncus balticus Willd. var. *littoralis* Engelm., 1998–C, **Pwt**—rare
Juncus dudleyi Wieg., 1891–C, **Pwt**—frequent
Juncus nodosus L., 1998–C, **Pwt**—rare
Juncus tenuis Willd., B, H, 1929–C, **Ted; Our,rw**—common
Juncus torreyi Cov., H[*J. nodosus* L. var. *megacephalus* Torr.], 1891–C, **Pwt**—frequent
Luzula multiflora (Retz.) Lej., 1901–1901

JUNCAGINACEAE
Triglochin maritimum L., H

LEMNACEAE
Lemna minor L., B, H, 1878–C, **Wez,sz,md**—common
Lemna trisulca L., H, 1986–C, **Wez,sz,md**—frequent
Spirodela polyrhiza (L.) Schleiden, B[*Lemna polyrrhiza* L.], H, 1998–C, **Wez,sz**—rare
Wolffia columbiana Karsten, 1998–C, **Wsz**—rare

LILIACEAE
Allium canadense L., B[*A. canadense* Kalm.], H, 1895–C, **Tmf,wf; Pms,wt**—frequent

Allium tricoccum Aiton, B, H, n.d.[1800's]–C, **Tmf**—infrequent
Allium vineale* L., 1998–C, **Our,rw—rare
Asparagus officinalis* L., H, 1892–C, **Pdr,ms; Orw—infrequent
Convallaria officinalis* L., 1998–C, **Ted; Our—rare
Erythronium albidum Nutt., B, H, 1884–C, **Tmf,wf**—common
+*Erythronium americanum* Ker-Gawl., 1997–C, **Tmf**—rare
Hemerocallus fulva* (L.) L., 1998–C, **Orw—frequent
Hypoxis hirsuta (L.) Cov., B[*Hypoxys erecta* L.], H[*H. erecta* L.], 1884–C, **Pms,wt**—rare
Lilium michiganense Farw., B[*L. superbum* L.], H[*L. canadense* L.; *L. superbum* L.], 1885–C, **Tmf; Pwt**—rare
Lilium philadelphicum L. var. *andinum* (Nutt.) Ker-Gawl., B, H, 1909–1929
Maianthemum canadense Desf., H
Ornithogalum umbellatum* L., 1999–C, **Tmf—rare
Polygonatum biflorum (Walter) Ell., B[*P. giganteum* Dietrich.], H[*P. commutatum* (Schyult.) Dietr.], 1881–C, **Tmf,wf,wd,ed; Orw**—common
Scilla siberica* Andr., 1969–C, **Our—infrequent
Smilacina racemosa (L.) Desf., B, H, 1881–C, **Tmf,wf,wd**—common
Smilacina stellata (L.) Desf., B, H, 1878–C, **Twf**—frequent
Smilax ecirrhata (Engelm. ex Kunth) S. Wats., 1895–C, **Tmf,wf,wd**—frequent
Smilax herbacea L., B, H[=; *S. herbacea* var. *pulverulenta* (Michx.) Gray], 1877–C, **Tmf,wf,wd**—infrequent
Smilax hispida Muhl., B, H, 1892–C, **T; Wrp**—common
Trillium cernuum L., H
Trillium flexipes Raf., H[*T. erectum* L.]
+*Trillium nivale* Riddell, 2001–C, **Tmf**—rare
Trillium recurvatum Beck, 1958–1958
Uvularia grandiflora Small, B[*U. grandiflora* Smith], H, 1881–C, **Tmf,wf**—infrequent

NAJADACEAE
Najas flexilis (Willd.) Rostk. & Schmidt, H, 1886–C, **Wsz**—rare
Najas guadalupensis (Sprengel) Magnus, 1999–C, **Wsz**—rare

ORCHIDACEAE
Coeloglossum viride (L.) Hartman var. *virescens* (Muhl. ex Willd.) Luer, B[*Habenaria viridis* R. Br. var. *bracteata* Richenbach.], H[*Habenaria bracteata* (Willd.) R. Br.], 1886–C, **Tmf,es,ed**—rare
Corallorhiza odontorhiza (Willd.) Nutt., 1972–C, **Tdf,mf**—rare
Cypripedium calceolus L. var. *pubescens* (Willd.) Correll, B[*C. pubescens* Willd.], H[*C. pubescens* Willd.], 1870–1907
Cypripedium candidum Muhl. ex Willd., B, H, 1881–1924
Cypripedium reginae Walter, B[*C. spectabile* Swartz.], H, 1870–1883
Epipactis helleborine* (L.) Crantz, 2000–C, **Our—rare
Galearis spectabilis (L.) Raf., B[*Orchis spectabilis* L.], H[*Orchis spectabilis* L.], 1873–C, **Tmf,wf**—infrequent
Liparis loeselii (L.) L.C. Rich., 2000–C, **Twd**—rare
Malaxis unifolia Michx., n.d.–n.d.
Platanthera hookeri (Torrey ex Gray) Lindley, n.d.–n.d.
Platanthera hyperborea (L.) R. Br. var. *huronensis* (Nutt.) Luer, 1890–1890
Platanthera praeclara Sheviak & Bowles, B[*Habenaria leucophaea* Gr.], H[*Habenaria leucophaea* (Nutt.) Gray], 1873–1907
Spiranthes cernua (L.) L.C. Rich. B, H, 1877–C, **Pwt**—rare
Spiranthes magnicamporum Sheviak, 1993–C, **Pwt**—rare
Spiranthes ovalis Lindley, 1993–C, **Twd,ed; Orc**—rare

POACEAE
×*Agrohordeum macounii* (Vasey) LePage, 1962–1964
**Agropyron cristatum* (L.) Gaertner, 1966–1966
**Agropyron pectiniforme* R. & S., 1961–1961
Agropyron repens* (L.) Beauv., B[*Triticum repens* L.], H, 1871–C, **Pms; Orw—common
Agropyron smithii Rydb., 1874–C, **Orw,of**—infrequent
Agropyron trachycaulum (Link) Malte, 1890–1962
Agrostis gigantea* Roth, B[*A. vulgaris* With.], H[*A. alba* L.; *A. alba* L. var. *vulgaris* (With.) Thurb. in Watson], 1890–C, **Pms,wt; Oof—frequent
Agrostis hyemalis (Walter) BSP., 1895–C, **Tes**—rare
Agrostis hyemalis (Walter) BSP. var. *tenuis* (Tuckerman) Gl., H[*A. hyemal* (Walt.) B.S.P.], 1942–1942
Agrostis perennans (Walter) Tuckerman, H, 1878–C, **Tdf,wd,ed**—frequent
Agrostis stolonifera* L. var. *palustris* (Hudson) Farw., 2000–C, **Twf; Wrp—infrequent
Alopecurus aequalis Sobol., 2000–C, **Wrp**—rare
Alopecurus carolinianus Walter, 1920–1920
Alopecurus pratensis* L., 1890–C, **Wrp—rare
Andropogon gerardii Vitman, B[*A. furcatus* Muhl.], H[*A. provincialis* Lam.], 1871–C, **Twd,ed; P; Orw**—common
**Anthoxanthum odoratum* L., B
Aristida basiramea Engelm. ex Vasey, 1896–1896
Aristida longespica Poiret, H[*A. gracilis* Ell.]
Aristida oligantha Michx., 1934–C, **Orw,rc**—frequent
**Arrhenatherum elatius* (L.) Presl, 1891–1900
Avena fatua* L., 1896–C, **Orc—rare
Bouteloua curtipendula (Michx.) Torrey, B[*B. curtipendula* Gray], H, 1987–C, **Ted; Pdr**—infrequent
Bouteloua hirsuta Lag., B, H, 1871–C, **Pdr**—rare
Brachyeletrum erectum (Schreber) Beauv., H, 1896–C, **Tmf**—rare
**Bromus catharticus* Vahl, 1890–1890
**Bromus commutatus* Schrader, 1859–1897
Bromus japonicus* Thunb. ex Murray, 1890–C, **Orc,cr,of—frequent
Bromus inermis* Leysser, 1890–C, **Ted,wd; P; O—common
Bromus kalmii Gray, B, H
Bromus latiglumis (Shear) A.S. Hitchc., 1887–C, **Tmf,wf**—rare
Bromus pubescens Muhl. ex Willd., B[*B. ciliatus* L. var. *purgans*], H[*B. ciliatus* L. var. *purgans* (L.) Gray], 1871–C, **Tdf**—rare
**Bromus secalinus* L., B, H, 1871–1898
Bromus tectorum* L., 1894–C, **Orc,cr,of—frequent
+*Buchloe dactyloides* (Nutt.) Engelm., 1959–C, **Our**—infrequent
Calamagrostis canadensis (Michx.) Beauv., H, 1894–C, **Pwt**—frequent
Calamagrostis inexpansa Gray, 1999–C, **Pwt**—rare
Calamovilfa longifolia (Hooker) Scribner, H, 1889–1889
Cenchrus longispinus (Hackel) Fern., H[*C. tribuloides* L.], 1875–C, **Orw,rc**—infrequent
Chloris verticillata* Nutt., 1947–C, **Our,rw—rare
Cinna arundinacea L., H, 1873–C, **Twf**—common
Cynodon dactylon* (L.) Pers., 1923–C, **Wrp; Our—rare
**Cynodon transvaalensis* Burtt-Davy., 1934–1934
Dactylis glomerata* L., B, H, 1882–C, **O—common
Diarrhena americana Beauv. var. *obovata* Gl., H[*D. diandra* (Michx.)], 1998–C, **Tdf,mf,wf**—infrequent
Dichanthelium acuminatum (Sw.) Gould & Clark, 1999–C, **Oof**—rare
Dichanthelium acuminatum (Sw.) Gould & Clark var. *implicatum* (Scribner) Gould & Clark, B[*Panicum dichotomum* L.], H[*Panicum dichotomum* L.], 1871–C, **Twd; P; Orc**—frequenr

Dichanthelium acuminatum (Sw.) Gould & Clark var. *villosum* (Gray) Gould & Clark, 1871–C, **Pwt**—infrequent
Dichanthelium depauperatum (Muhl.) Gould, 1877–1877
Dichanthelium latifolium (L.) Gould & Clark, B[*Panicum latifolium* L.], H[*Panicum latifolium* L.], 1871–C, **Tdf,wd**—rare
Dichanthelium leibergii (Vasey) Freckm., 1870–C, **Pwt**—rare
Dichanthelium oligosanthes (Schultes) Gould, 1999–C, **Pdr**—rare
Dichanthelium oligosanthes (Schultes) Gould var. *scribnerianum* (Nash) Gould, H[*Panicum scoparium* Lam.], 1870–C, **Twd; P; Orw,rc,of**—common
Dichanthelium oligosanthes (Schultes) Gould var. *wilcoxianum* (Vasey) Gould & Clark, 1965–C, **Pdr**—rare
Dichanthelium perlongum (Nash) Freckm., 1896–1907
Digitaria bicornis* (Lam.) R. & S., 1998–C, **Ocr—rare
Digitaria ischaemum* (Schreber ex Schweigger) Schreber ex Muhl., B[*Panicum glabrum* Gaudin], H[*Panicum glabrum* (Schrad.) Gand.], 1887–C, **Our—common
Digitaria sanguinalis* (L.) Scop., B[*Panicum sanguinale* L.], H[*Panicum sanguinale* L.], 1875–C, **Our,cr—common
Echinochloa crusgalli* (L.) Beauv., B[*Panicum crus-galli* L.], H[*Panicum crus-galli* L.], 1888–C, **Pwt; Wrp; Orw,cr,of—common
Echinochloa muricata (Beauv.) Fern., 1871–C, **Pwt; Wrp; Orw,cr,of**—frequent
Eleusine indica* (L.) Gaertner, 1890–C, **Our,cr,ps—rare
×*Elyhordeum iowense* Pohl, 1964–1965
Elymus canadensis L., B, H[=; *E. canadensis* L. var. *glaucifolius* (Muhl.) Gray], 1871–C, **P; Orw**—common
Elymus riparius Wieg., 2000–C, **Twf; Wrp**—rare
Elymus villosus Muhl. ex Willd., H[*E. striatus* Willd.], 1888–C, **Tmf,wf**—common
Elymus virginicus L., H[=; *E. canadensis* L. var. *glabrifolius* Vasey], 1886–C, **Tmf,wf; Pms; Orc**—common
Eragrostis cilianensis* (All.) Link ex E. Mosher, B[*E. poaeoides* Beauv. var. *megastachya*], H[*E. major* Host.], 1871–C, **Our—frequent
Eragrostis frankii C.A. Meyer ex Steudel, B, H, 1875–C, **Wrp**—infrequent
Eragrostis hypnoides (Lam.) BSP., B[*E. reptans* Nees], H, 1870–C, **Wrp**—common
Eragrostis pectinacea (Michx.) Nees, H[=; *E. purshii* Schrad.], 1871–C, **Wrp; Our**—common
Eragrostis poaeoides* Beauv. ex R. & S., B, 1875–C, **Our—infrequent
Eragrostis spectabilis (Pursh) Steudel, 1942–C, **Pdr**—rare
Eragrostis trichodes (Nutt.) Wood, 1951–C, **Orc**—rare
Eriochloa villosa* (Thunb.) Kunth, 1998–C, **Ocr,of—infrequent
Festuca arundinacea* Schreber, 1956–C, **Orw—infrequent
Festuca myuros* L., 2000–C, **Wrp—rare
Festuca obtusa Biehler, H[*F. nutans* Willd.], 1924–C, **T**—common
Festuca octoflora Walter var. *tenella* (Willd.) Fern., B[*F. tenella* Willd.], H, 1888–1945
Festuca ovina L., 1900–C, **Wrp**—rare
Festuca paradoxa Desv., H[*F. shortii* Kunth], 1871–1871
Festuca pratensis* Hudson, 1902–C, **Wrp—rare
Festuca rubra* L., 2000–C, **Wrp—rare
Festuca trachyphylla* (Hackel) Krajina, 2000–C, **Wrp—rare
Glyceria grandis S. Watson, 1900–C, **Pwt; Wsp**—infrequent
Glyceria septentrionalis A.S. Hitchc., H[*G. fluitans* (L.) R. Br.], 1884–C, **Wez**—rare
Glyceria striata (Lam.) A.S. Hitchc., B[*G. nervata* Trin.], H[*G. nervata* (Willd.) Trin.], 1875–C, **Twf; Pwt**—frequent
Hierochloe odorata (L.) Beauv., B[*Hierochloa borealis* Roem & Schultes]
**Holcus lanatus* L., 1893–1893
Hordeum jubatum L., B, H, 1894–C, **Our,rw,cr**—common
Hordeum pusillum* Nutt., 1917–C, **Orc—infrequent
Hystrix patula Moench, B[*Gymnostichum hystrix* Schreb.], H[*Asprella hystrix* (L.) Willd.], 1895–C, **Tmf**—frequent
Koeleria macrantha (Ledeb.) Schultes, H, 1895–C, **Pdr**—infrequent
Leersia oryzoides (L.) Sw., H[*Homalocenchrus oryzoides* (L.) Poll.], 1884–C, **Pwt; Wez,rp**—common
Leersia virginica Willd., H[*Homalocenchrus virginica* (Willd.) Britt.], 1875–C, **Twf**—common
Leptochloa fascicularis (Lam.) Gray var. *acuminata* (Nash) Gl., 1965–C, **Orc**—infrequent
Lolium perenne* L., H, 1888–C, **Our—infrequent
Lolium perenne* L. var. *italicum* Parn., H[*L. perenne* L. var. *italicum* Vasey], 2000–C, **Wrp—rare
**Lolium temulentum* L., 1880–1880
Miscanthus sacchariflorus* (Maxim.) Hackel, 2000–C, **Orw—infrequent
Muhlenbergia asperifolia (Nees & Meyer) Parodi, 1999–C, **Pwt**—rare
Muhlenbergia bushii Pohl, 1960–C, **Tdf,mf**—infrequent
Muhlenbergia cuspidata (Torrey) Rydb., 1889–C, **Pdr**—rare
Muhlenbergia frondosa (Poiret) Fern., 1889–C, **Ted; Pwt**—common
Muhlenbergia mexicana (L.) Trin., 1889–C, **Tdf; Pdr**—frequent
Muhlenbergia racemosa (Michx.) BSP., B[*M. glomerata* Trin.], H, 1889–C, **Pwt; Orw,rc**—frequent
Muhlenbergia schreberi J.F. Gmelin, H[*M. diffusa* Schreb.], 1896–C, **Ted; Our**—frequent
Muhlenbergia sobolifera (Muhl. ex Willd.) Trin., H
Muhlenbergia sylvatica (Torrey) Torrey ex Gray, H
Muhlenbergia tenuiflora (Willd.) BSP., H, 1889–C, **Tmf**—rare
Oryzopsis racemosa (Smith) Ricker, H[*O. melanocarpa* Muhl.], 1889–C, **Tdf**—rare
Panicum capillare L., B, H, 1934–C, **Pwt; Wrp; Orw,cr,of**—common
Panicum dichotomiflorum Michx., H[*P. proliferum* Lam.], 1875–C, **Pwt; Wrp; Orw,cr,of**—common
Panicum miliaceum* L., 1911–C, **Wrp—rare
Panicum virgatum L., H, 1934–C, **Pmf,wf; Orw**—common
Paspalum setaceum Michx. var. *ciliatifolium* (Michx.) Vasey, 1964–C, **Orw**—rare
Phalaris arundinacea L., H, 1907–C, **Pwt; Wez,rp; Orw**—common
Phleum pratense* L., B, H, 1891–C, **Our,rw—frequent
Phragmites australis (Cav.) Trin. ex Steudel, B[*P. communis* Trin.], H[*P. vulgaris* (Lam.) B.S.P.], 1998–C, **Pwt; Orw**—infrequent
Poa annua* L., 1932–C, **Wrp; Our—common
**Poa bulbosa* L., 1929–1929
Poa compressa* L., H, 1907–C, **Pdr,ms—frequent
Poa languida A.S. Hitchc., 1897–1897
Poa palustris L., H[*P. serotina* Ehr.], 1871–C, **Orw**—rare
Poa pratensis* L., B, H, 1880–C, **P; O—common
Poa pratensis* L. ssp. *angustifolia* (L.) Lej., 2000–C, **Wrp—rare
Poa sylvestris Gray, 1871–C, **Twf**—rare
Poa trivialis* L., 1960–C, **Orw—rare
Poa wolfii Scribner, 1897–C, **Wsp**—rare
Puccinellia distans* (L.) Parl., 2000–C, **Wrp—rare
Schizachyrium scoparium (Michx.) Nash, B[*Andropogon scoparius* Michx.], H, 1871–C, **Ted,wd; Pdr**—frequent
Sclerochloa dura* (L.) Beauv., 2000–C, **Wrp—rare
Setaria faberi* Herrm., 1949–C, **O—common
Setaria glauca* (L.) Beauv., H, 1883–C, **O—common
Setaria italica* (L.) Beauv., H, 1888–C, **Pms; Ocr—infrequent
Setaria viridis* (L.) Beauv., B, H, 1900–C, **O—common
Setaria verticillata* (L.) Beauv., 1927–C, **Our,cr—rare

Sorghastrum nutans (L.) Nash, B[*Sorghum nutans* Gray], H[*Chrysopogon nutans* (L.) Benth.], 1883–C, **Ted; P**—common
Sorghum bicolor* (L.) Moench, 1890–C, **Oof,cr; Wrp—rare
**Sorghum halepense* (L.) Pers., 1890–1890
Spartina pectinata Link, B[*S. cynosuroides* Willd.], H[*S. cynosuroides* (L.) Willd.], 1870–C, **Pwt; Orw**—frequent
Sphenopholis obtusata (Michx.) Scribner, H[*Eatonia obtusata* (L.) Pers.], 1962–C, **Tes; Pwt**—frequent
Sphenopholis obtusata (Michx.) Scribner var. *major* (Torrey) K.S. Erdman, 1871–C, **Twf,wd; Orc**—frequent
Sporobolus asper (Michx.) Kunth, H, 1896–C, **Pdr; O**—frequent
Sporobolus cryptandrus (Torrey) Gray, H, 1972–C, **Orw,rc**—rare
Sporobolus heterolepis (Gray) Gray, H, 1875–C, **P**—infrequent
Sporobolus neglectus Nash, 1873–C, **Our,rw,rc**—rare
Sporobolus vaginiflorus (Torrey ex Gray) Wood, H[*S. vaginaeflorus* (Torr.) Vasey], 1896–C, **Our,rw,rc**—rare
Stipa spartea Trin., B, H, 1875–C, **Pdr; Orw**—frequent
Stipa viridula Trin., 1891–1976
Tridens flavus (L.) A.S. Hitchc., 1980–C, **Twd; Oof**—rare
Zizania aquatica L., H, 1887–1892

PONTEDERIACEAE
Heteranthera dubia (Jacq.) MacM., 1880–1889
Pontederia cordata L., H, n.d.[1880's]–n.d.

POTAMOGETONACEAE
Potamogeton foliosus Raf., 1889–C, **Wsz**—rare
Potamogeton gramineus L., H[*P. heterophyllus* Schreb.; *P. obtusifolius* Mertens and Koch (ISC specimen misidentified)], n.d.[1800's]–n.d.
Potamogeton illinoensis Morong, H[=; *P. lucens* L.]
Potamogeton nodosus Poiret, n.d.[1800's]–C, **Wsz,md**—frequent
Potamogeton pectinatus L., 1998–C, **Wsz**—infrequent
Potamogeton pusillus L., 1998–C, **Wsz**—rare
Potamogeton zosteriformis Fern., H[*P. zosteraefolius* Schum.], 1999–C, **Wsz**—rare

SPARGANIACEAE
Sparganium chlorocarpum Rydb., H[*S. simplex* Huds. (ISC specimen misidentified)], 1885–C, **Wez**—rare
Sparganium eurycarpum Engelm., H, 1889–C, **Wez**—frequent

TYPHACEAE
Typha angustifolia L., 1998–C, **W; Orw**—frequent
Typha × *glauca* Godron, 2000–C, **W; Orw**—frequent
Typha latifolia L., B, H, 1889–C, **W; Orw**—common

ZANNICHELLIACEAE
Zannichellia palustris L., H, 1889–C, **Wsz**—rare

Appendix B. Historic reports, ISC specimens and plant species observations excluded from official list of Ames vascular plant species. Names in brackets indicate nomenclature not in current usage. Reason for exclusion: 1 = unable to resolve synonymy; 2 = no evidence for naturalization; 3 = reported in Ames by Bessey (1871) or Hitchcock (1890) at a site outside our current (1990–2000) inventory boundary; 4 = known from Iowa but occurrence in central Iowa is unlikely; 5 = occurrence in Iowa is unlikely; 6 = unable to verify identification of species from herbarium material.

A) Published reports in Bessey (1871)

Asplenium rhizophyllum L. [*Camptosorus rhizophyllus* Link.] 3
Aster dumosus L. 4
Aster patens Aiton 5
Athyrium thelypterioides (Michx.) Desv. [*Asplenium thelypteroides* Michx.] 4
[*Arabis hesperidoides* Gray] 1
Carex adusta Boott. 5
Carex bromoides Willd. [*Carex bromoides* Schk.] 5
[*Crataegus tomentosa* L.] 1
Dichanthelium xanthophysum (Gray) Freckmann [*Panicum xanthophysum* Gray] 5
Equisetum palustre L. 5
Fagopyrum esculentum Moench. 2
Helianthus giganteus L. × *mollis* Lam. [*Helianthus doronicoides* Lam.] 5
Lepidium ruderale L. 5
Linum usitatissimum L. 2
[*Lappa officinalis* All. var. *major*] 1
Lobelia paludosa Nutt. 5
Panicum rigidulum Nees [*Panicum agrostoides* L.] 5
[*Phaseolus diversifolius* Pers.] 1
[*Phaseolus perennis* Walt.] 1
[*Physalis viscosa* L.] 1
Polypodium virginianum L. [*Polypodium vulgare* L.] 3
Prenanthes crepidinea Michx. [*Nabalus crepidinus* DC.] 5
[*Ribes rotundifolium* Michx.] 5
[*Rosa lucida* Ehrhart] 1
[*Rubus villosus* Ait.] 1
Sambucus racemosa L. ssp. *pubens* (Michx.) House [*Sambucus pubens* Michx.] 4
Sanicula marilandica L. 4
Vitis vulpina L. [*Vitis cordifolia* Michx.] 4

B) Published reports in Hitchcock (1890)

Agalinis nuttallii Shinners [*Gerardia longifolia* Benth.] 5
Asclepias engelmanniana Woodson [*Acerates floridana* (Lam.)] 5
Aesculus glabra Willd. 3
Artemisia campestris L. ssp. *caudata* (Michx.) Hall & Clem [*Artemisia caudata* Michx.] 3
Beckmannia syzigachne (Steudel) Fern. [*Beckmannia erucaeformis* (L.) Host var. *uniflorus* Scrib. in Vasey] 4
Blephilia hirsuta (Pursh) Bentham 3
Brasenia schreberi J.F. Gmelin [*Brasenia nymphoides* (Thunb.) Ball] 3
Bromus ciliatus L. 4
Carex intumescens Rudge 4
Crataegus tomentosa L. 1
Eleocharis cyperinum L. 1
Fagopyrum esculentum Moench 2
Foeniculum vulgare Hill [*Foeniculum officinale* L.] 2
[*Helianthus strumosus* L. var. *mollis* (Willd.) Torr. & Gray] 1
[*Heteranthera graminea* (Michx.) Vahl.] 1
Hydrophyllum appendiculatum Michx. 3
Ipomoea purpurea (L.) Roth 2
Lechea minor L. 5
Linum usitatissimum L. 2
Lycopus rubellus Moench. 5
Megalondonta beckii (Torrey ex Sprengel) Greene [*Bidens beckii* Torr. in Sprengel] 3
Myriophyllum spicatum L. 3
Nuphar luteum (L.) Sibth. and Smith ssp. *variegatum* (Engelm. ex Dur.) E. O. Beal [*Nymphaea advena* Solander] 3
Nymphaea tuberosa Paine [*Castalia tuberosa* (Paine) Greene] 3
Oenothera rhombipetala Nutt. ex T. & G. 3
Parnassia glauca Raf. [*Parnassia caroliniana* Michx.] 3
Phalaris canariensis L. 2
[*Polygonum amphibium* L.] 1
Potamogeton nodosus Poiret [*Potamogeton fluitans* Roth.] 3
Potentilla anserina L. 3
Quercus muhlenbergii Engelm. 3
Ranunculus acris L. 2
Raphanus sativus L. 2
[*Rubus villosus* Ait.] 1
Rumex maritimus L. 3
Senecio obovatus Muhl. ex Willd. [*Senecio aureus* L. var. *obovatus* (Muhl.) Torr. & Gray] 5
Senecio pauperculus Michx. [*Senecio aureus* L. var. *balsamitae* (Muhl.) Torr. & Gray] 3
Silphium integrifolium Michx. 3
Sphenopholis nitida (Biehler) Scribn. [*Eatonia pennsylvanica* (Sprengel)] 5
Trillium nivale Riddell 3
Vallisneria americana Michx. [*Vallisneria spiralis* L.] 3

C) Herbarium Voucher Specimens (ISC)

Amaranthus hybridus L. 2
Anaphalis margaritacea (L.) Bentham & Hooker 6
Anethum graveolens L. 2
Arabis lyrata L. 4
Berberis amurensis Rupr. 2
Berberis esculenta 2
Berberis fischeri 2
Berberis macrophylla 2
Carum carvi L. 2
Centaurea calcitrapa L. 1, 2
Cicer arietinum L.
Cotinus obovatus Raf. 2
Crataegus monogyna Jacq. 2
Cucurbita maxima Duches. ex Lam. 2
Cucurbita pepo L. 2
Cuscuta coryli Engelm. 6
Elymus submuticus (Hook.) Smyth 6
Foeniculum vulgare Hill 2
Gentiana alba Muhl. × *G. puberulenta* J. Pringle 6
Hordeum vulgare L. 2
Linum usitatissiumum L. 2
Lonicera prolifica (Kirchner) Rehder 2

Appendix B. Continued.

Morus nigra L. 1, 6
Nothoscordum bivalve (L.) Britton 6
[*Oenothera biennis* L.] 1, 6
Phalaris canariensis L. 2
Raphanus sativus L. 2
Salix alba L. 2
Secale cereale L. 2
Shepherdea argentea (Pursh) Nutt. 2
Silene gallica L. 5, 6
Sisyrinchium angustifolium Miller 6
Smilax rotundifolia L. 5, 6

D) Observations (1990–2000)

Avena sativa L. 2
Borago vulgaris L. 2
Brassica oleracea L. 2
Filipendula rubra (Hill) B.L. Robinson 2
Glycine max (L.) Merr.
Lycopersicon esculentum P. Millet 2
Raphanus sativus L. 2
Syringa vulgaris L. 2
Taxus sp. 2
Triticum aestivum L. 2
Zea mays L. 2
Solanum jamesii Torr. 2
Sorghum sudanense (Piper) Stapf 2
Symphoricarpos albus (L.) Blake 2
Syringa persica L. 2
Syringa vulgaris L. 2
Tragopogon porrifolius L. 6
Trifolium medium L. 2
Trifolium striatum L. 2
Tripsacum dactyloides (L.) L. 2
Viburnum dentatum L. 4
Vicia cracca L. 2

Appendix C. Descriptions and map (fig. 3) of sites containing significant plant assemblages in Ames, Iowa. Sites 1–26 currently exist; the plant communities of sites B and H have largely been destroyed. All sites occur in Story County except for the west end of site 21.

No.	Site Name	Location	Habitat Types	Rare and Infrequent Plant Species
1	Cooper's Marsh	T84N R23W sec 21 se1/4 sw1/4 sw1/4; 42°03′50″N, 93°32′10″W	Pwt; Wsz, ez	*Agalinis tenuifolia, Campanula aparinoides, Carex atherodes* × *trichocarpa, C. crawei, C. crawfordii, Potamogeton zosteriformis, Tomanthera auriculata, Utricularia vulgaris*
2	Ketelsen Marsh	T84N R23W sec 31 ne1/4; 42°02′40″N, 93°34′00″W	Pwt; Wsz, ez	*Bidens vulgata, Boltonia decurrens, Carex bebbii, C. stricta, C. suberecta, Echinodorus cordifolius, Eleocharis macrostachya, Eupatorium perfoliatum, Glyceria septentrionalis, Hibiscus laevis, Juncus nodosus, Lysimachia thyrsiflora, Pedicularis lanceolata, Scirpus fluviatilis, Solidago riddellii, Sparganium chlorocarpum, S. eurycarpum, Spirodela polyrhiza*
3	Peterson Pits	T84N R24W sec 13 w1/2 and ne1/4; 42°05′10″N, 93°35′40″W	Twf, wd; Pdr; Wez, sz, rp; Orc	*Agastache scrophulariifolia, Androsace occidentalis, Arisaema dracontium, Boehmeria cylindrica, Carex leavenworthii, Clematis pitcheri, Dracocephalum parviflorum, Echinocystis lobata, Eragrostis trichodes, Geum aleppicum* var. *strictum, Hemicarpha micrantha, Lilium michiganense, Najas guadalupensis, Plantago patagonica, Potamogeton foliosus, Sium suave, Spiranthes ovalis, Strophostyles helvula, Verbena* × *deamii, V.* × *rydbergii, V.* × *moechina, Zannichellia palustris*
4	Raymond-Rolling Prairie	T84N R24W sec 14 e1/2; 42°05′10″N, 93°36′10″W	Pdr, ms	*Asclepias viridiflora, Asplenium rhizophyllum, Aster azureus, Astragalus crassicarpus, Cirsium hillii, Croton glandulosa, Dalea candida, Eragrostis spectabilis, Gentiana puberulenta, Helianthemum bicknellii, Lespedeza leptostachya, Linum sulcatum, Mirabilis albida, M. hirsuta, Nothocalais cuspidata, Viola pedatifida, V. viarum*
5	Hallett's Quarry	T84N R24W sec 22; 42°04′00″N, 93°37′30″W	Twd; Orc	*Cuscuta cephalanthii, Dichanthelium acuminatum* var. *acuminatum, Eclipta alba, Eleocharis engelmannii, Helianthemum bicknellii, Lactuca ludoviciana, Lysimachia hybrida, Verbena canadensis*
6	Inis Grove Park	T84N R24W sec 26 and 35; 42°03′00″N, 93°36′50″W	Tdf, mf, wf, es; Wsp	*Arabis hirsuta, Aralia nudicaulis, Astragalus canadensis, Carex conjuncta, C. normalis, Lilium michiganense, Lonicera dioica* var. *glaucescens, Polygala verticillata, Spiranthes ovalis*
7	North River Valley Park	T84N R24W sec 35 e1/2 and 36 sw1/4; 42°02′20″N, 93°36′00″W	Twf	*Arabis shortii, Botrychium dissectum* f. *dissectum, Botrychium dissectum* f. *obliquum, Panax quinquefolius*
8	Holub Prairie	T83N R23W sec 5 ne1/4; 42°01′50″N, 93°32′30″W	Twd; Pwt	*Agalinis tenuifolia, Carex frankii, Scirpus acutus, Spiranthes cernua, S. magnicamporum*
9	Interstate 35 East–Between Lincoln Way and Highway 30	T83N R23W sec 7 e1/2; 42°01′00″N, 93°34′00″W	Twf, wd	*Asplenium rhizophyllum, Botrychium dissectum* f. *dissectum, Botrychium dissectum* f. *obliquum, Galearis spectabilis, Liparis loeselii*
10	Stargrass Prairie	T83N R23W sec 17 sw1/4; 41°59′40″N, 93°33′10″W	Prairie reconstruction with some natural prairie	*Asclepias amplexicaulis, Cassia marilandica, Paspalum setaceum* var. *ciliatifolium, Prunus mexicana, Rudbeckia subtomentosa*
11	Pohl Memorial State Preserve at Ames High School	T84N R24W sec 34 nw1/4 sw1/4; 42°02′20″N, 93°38′20″W	Pdr, ms	*Asclepias tuberosa* ssp. *interior, A. viridiflora, Aster azureus, A. sericeus, Astragalus crassicarpus, Baptisia bracteata* var. *glabrescens, B. lactea, Bouteloua hirsuta, Calylophus serrulata, Carex meadii, Ceanothus americanus* var. *pitcheri, Dichanthelium oligosanthes* var. *oligosanthes, D. oligosanthes* var. *wilcoxianum, Echinacea pallida, Gentiana puberulenta, Hypoxis hirsuta, Koeleria macrantha, Linum sulcatum, Lithospermum incisum, Pediomelum argophyllum, Nothocalais cuspidata, Tridens flavus, Vernonia baldwinii, Viola pedatifida, V. pedatifida* × *sororia*

Appendix C. Continued.

No.	Site Name	Location	Habitat Types	Rare and Infrequent Plant Species
12	Brookside Park	T83N R24W sec 3 n1/2; 42°01′50″N, 93°37′50″W	Twf	*Carex grayi, Cuscuta pentagona, Juglans cinerea*
13	Pammel Woods	T83N R24W sec 4 nw1/4; 42°02′00″N, 93°39′10″W	Tdf, mf, wf	*Arisaema dracontium, Brachyeletrum erectum, Diarrhena americana* var. *obovata*
14	Emma McCarthy Lee Park	T83N R24W sec 5 ne1/4; 42°01′50″N, 93°39′40″W	Twf, mf, ed	*Arisaema dracontium*
15	Clear Creek Woods	T83N R24W sec 5 ne1/4; 42°01′40″N, 93° 40′10″W	Tdf, mf, wf	*Arisaema dracontium, Napaea dioica*
16	Munn Woods	T83N R24W sec 5 sw1/4; 42°01′30″N, 93°40′30″W	Tdf, mf, wf, es	*Agrostis hyemalis, Campanula aparinoides, Corallorhiza odontorhiza, Gentiana quinquefolia* var. *occidentalis, Monotropa uniflora, Muhlenbergia tenuiflora, Polygala verticillata*
17	Reactor Woods	T84N R24W sec 32; 42°02′40″N, 93°39′50″W	Tdf, mf, wf, es	*Actaea rubra, Arabis canadensis, Aralia racemosa, Asplenium platyneuron, Athyrium felix-femina* var. *angustum, Bromus pubescens, Carex albursina, C. conjuncta, C. hirtifolia, C. hitchcockiana, C. sparganioides, Coeloglossum viride* var. *virescens, Diarrhena americana* var. *obovatus, Dichanthelium latifolium, Dryopteris carthusiana, Galearis spectabilis, Gentiana alba, G. andrewsii, Hieracium scabrum, Juglans cinerea, Lonicera dioica* var. *glaucescens, Oryzopsis racemosa, Panax quinquefolius, Populus grandidentata, Taenidia intergerrima*
18	Union Pacific Railroad (North)	T84N R24W sec 16, 21 and 28; 42°03′50″N, 93°38′50″W	Pms, wt	*Carex sartwellii, Lilium michiganense, Oxypolis rigidior, Sium suave, Symphoricarpos occidentalis*
19	Northridge Seep	T84N R24W sec 33 nw1/4 nw1/4 nw1/4; 42°02′50″N, 93°39′20″W	Wsp, rp	*Aster prenanthoides, Caltha palustris, Campanula aparinoides, Carex stipata, C. stricta, C. tenera* var. *echinoides, Chelone glabra, Poa sylvestris, P. wolfii, Salix bebbiana, Silene nivea*
20	Squaw Creek	T84N R24W sec 29 e1/2 and sec 20 w1/2; 42°03′50″N, 93°40′10″W	Tdf, mf, wf, es, ed; Pdr; Wrp	*Asplenium rhizophyllum, Botrychium dissectum* f. *obliquum, Calylophus serrulata, Carex conjuncta, C. grayi, C. lupulina, Cuscuta pentagona, Elodea nuttallii, Gnaphalium obtusifolium, Hedeoma pulegioides, Hemicarpha micrantha, Iodanthus pinnatifidus, Lilium michiganense, Linum sulcatum, Mirabilis albida, M. hirsuta, Muhlenbergia bushii, Paronychia canadensis, Spiranthes ovalis, Veronica anagallis-aquatica, V. catenata*
21	Union Pacific Railroad (West)	T84N R24W sec 31 sw1/4; T84N R25W sec 36; 42°02′20″N, 93°42′00″W	Pms, wt	*Agalinis tenuifolia, Aster praealtus, Calamagrostis inexpansa, Carex lacustris, C. prairea, C. sartwellii, C. tetanica, C. trichocarpa, Dichanthelium leibergii, Eryngium yuccifolium, Gentiana andrewsii, Gentianella quinquefolia* var. *occidentalis, Geum aleppicum, Helenium autumnale, Lactuca tatarica* ssp. *pulchella, Lilium michiganense, Liatris pycnostachya, Oxypolis rigidior, Prenanthes racemosa, Senecio pseudaureus, Solidago missouriensis, Spiranthes magnicamporum, Symphoricarpos occidentalis, Tomanthera auriculata, Verbena* × *engelmannii*
22	Worle Creek (West)	T83N R24W sec 17 se1/4; 41°59′50″N, 93°39′50″W	Wrp; Ops	*Agastache scrophulariifolia, Carex aggregata, C. eburnea, C. leavenworthii, C. lupulina, Crataegus calpodendron, C. succulenta, Fragaria vesca* var. *americana*
23	Worle Creek (East)	T83N R24W sec 16 w1/2; 42°00′00″N, 93°39′20″W	Tdf, mf, wf, wd, es; Pdr	*Actaea rubra, Arisaema dracontium, Brachyeletrum erectum, Coreopsis tripteris, Dichanthelium latifolium, Oryzopsis racemosa, Ribes cynosbati, Rubus idaeus* var. *strigosus*

Appendix C. Continued.

No.	Site Name	Location	Habitat Types	Rare and Infrequent Plant Species
24	Zumwalt Station City Park	T83N R24W sec 16; 41°59′40″N, 93°40′00″W	Tdf, mf, wd; Ops	*Carex hirtifolia, Fragaria vesca* var. *americana, Hypericum prolificum, Monotropa uniflora, Ribes cynosbati*
25	Black's Prairie	T83N R24W sec 28 nw1/4 nw1/4 sw1/4; 41°58′20″N, 93°39′30″W	Pwt	*Asclepias sullivantii, Carex tetanica, Dichanthelium leibergii, Eryngium yuccifolium, Hypoxis hirsuta, Oxalis violacea, Oxypolis rigidior*
26	Adam's Prairie	T83N R24W sec 21 ne1/4 ne1/4 ne1/4; 41°59′40″N, 93°38′20″W	Pwt	*Carex annectens* var. *xanthocarpa, C. buxbaumii, C. haydenii, C. sartwellii, Eryngium yuccifolium, Gentiana puberulenta, Hypoxis hirsuta*
B	Ames Peat Bog	T84N R24W sec 36 n1/2; 42°02′50″N, 93°35′10″W	Tdf, mf, wf	*Aster puniceus, A. umbellatus, Botrychium dissectum* f. *obliquum, Corallorhiza odontorhiza, Epilobium coloratum, Eupatorium maculatum, Monotropa uniflora, Pedicularis lanceolata, Populus tremuloides*
H	Hayden Farm	T84N R24W sec 27 e1/2 nw1/4; 42°03′40″N, 93°37′50″W	Pdr, ms, wt; Wsp; Orc	*Acorus calamus, Agalinis purpurea, Asclepias sullivantii, Astragalus crassicarpus, Bouteloua hirsuta, Caltha palustris, Cypripedium candidum, Dichanthelium perlongum, Glyceria septentrionalis, Koeleria macrantha, Liatris cylindracea, Lilium michiganense, L. philadelphicum* var. *andinum, Lysimachia terrestris, Pediomelum argophylla, Polygala incarnata, Sagittaria australis, Sium suave*

Dear Ames City Council Members,

I have attended various Ames 2040 meetings, zoom meeting, and open house events over the past months to stay updated and learn about the planning process. I have appreciated the time you and staff have committed to this planning process and asking for input on this. Thank you for all you work.

After reviewing the material, I disagree with the classification for the area south of HWY 30, west of State Street (south of ISU Curtiss Farm) as "RN-3" in the "Ames Future Land Use Map". I have reviewed the Ames 2040 Draft Plan section discussing "Open Space" and I think this area should be change to "Open Space" classification because of the Characteristics and Goals outline on Page 50 (attached to this letter). Several key items discussed on this page are:

Characteristics

» Large areas of public land intended to remain undeveloped and natural in character, including public greenways.

» Privately or publicly-owned environmentally sensitive areas that should not be developed.

» Agricultural uses are common.

» Specific policy directions are included in the Urban Fringe Policy

Goals

» Set aside land intended to remain primarily undeveloped and natural in character as permanent open space.

» Preserve natural areas as passive open space in accordance with planned greenways or in support of larger natural preservation areas.

Development Guidelines

» Agricultural or other similar low intensity development zoning districts would apply. During zoning and site plan review, evaluate proposals for separation distances adequate to minimize noise, glare, and hazards that would impair the quality of open space.

» Retain natural areas, open space, and habitat in the City. See also Open Space Chapter. Permit development only when serving environmental, park, or agricultural purposes.

» Allow minor encroachment of residential zoning for existing uses and limit allowances for new residential with a precise study of environmental constraints and plans to locate structures outside of sensitive areas to retain the natural, aesthetic, and environmental value of the area and property. Multiple developable sites would require a land use map designation amendment.

Additionally the Ames 2040 draft plan addresses several environmental concerns starting on page 80 that would conflict the "RN-3" Future land use classification for this area. For example, the Natural Resources section on page 81 says:

"Natural Resources

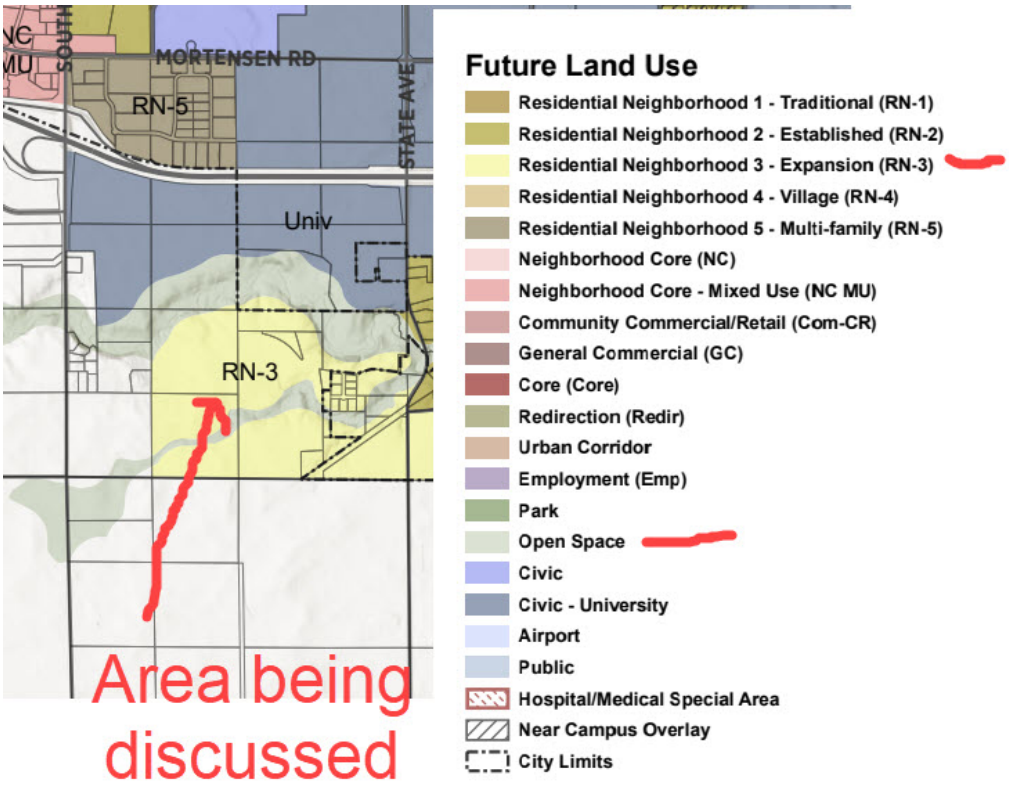
Preserving the City's existing natural resources is vital to the community. They provide habitat for wildlife, minimize stormwater run-off, stabilize soils, influence climactic effects, offer visual appeal and serve some recreational purposes. In recognizing their value, this plan identifies the natural features present in Ames and reviews some of the current initiatives for their preservation.

When considering natural features, some lots are better for development than others from an environmental, developmental cost, and long-term maintenance standpoint (e.g., land containing steep slopes, floodplain).

The following pages identify the natural features to be considered and are combined to create the Critical Natural Resource Areas map. The map identifies areas that are suitable for development or may influence how development proceeds within identified growth areas."

I would ask you to drive thru this area and notice the creek, 200 year old oak trees and terraces because the land slope are too steep to farm without negatively impacting the environment. Also the prior "Worle Creek Sanitary Sewer Extension Study" listed on the City of Ames Website here https://www.cityofames.org/government/departments-divisions-i-z/public-works/engineering/worle-creek list various environmental, wildlife species/habitat concerns and archaeological area of interest that I believe support this area being classified as "Open Space"

In closing, I am asking the area south of Hwy 30, west of State Street (south of ISU Curtiss Farm) be changed from RN-3 to Open Space on the Ames Future Land Use Map (see included map below for reference).



Thank you for your time and consideration

Sincerely,

Kent Vickre

Attachments:
Ames Plan 2040 Draft, Page 50—Land Use: Categories
Ames Plan 2040 Draft, Page 52—Conditions

LAND USE: CATEGORIES

Open Space

CHARACTERISTICS

- Large areas of public land intended to remain undeveloped and natural in character, including public greenways.
- Privately or publicly-owned environmentally sensitive areas that should not be developed.
- Agricultural uses are common.
- May include public recreation facilities.
- Specific policy directions are included in the Urban Fringe Policy.

APPLICABLE EXISTING ZONING CATEGORIES

- Government
- Agriculture
- Potential conservation or fringe overlays in areas where residential uses might be existing or permitted.

Development Guidelines are applicable for consideration of changes to land use designations, zoning consistency, and in some cases specific project elements.

Public Actions are intended to identify potential initiatives for the City that relate to broad City goals and the vision of the Plan. They do not apply to individual projects.

GOALS

- Set aside land intended to remain primarily undeveloped and natural in character as permanent open space.
- Limit public open space to passive activities and conservation efforts.
- Preserve natural areas as passive open space in accordance with planned greenways or in support of larger natural preservation areas.

DEVELOPMENT GUIDELINES

- Agricultural or other similar low intensity development zoning districts would apply. During zoning and site plan review, evaluate proposals for separation distances adequate to minimize noise, glare, and hazards that would impair the quality of open space.
- Retain natural areas, open space, and habitat in the City. See also Open Space Chapter. Permit development only when serving environmental, park, or agricultural purposes.
- Allow minor encroachment of residential zoning for existing uses and limit allowances for new residential with a precise study of environmental constraints and plans to locate structures outside of sensitive areas to retain the natural, aesthetic, and environmental value of the area and property. Multiple developable sites would require a land use map designation amendment.
- Areas within the Ames Urban Fringe are predominantly natural and agricultural uses and are subject to the policies of the Ames Urban Fringe Plan and associated 28E agreements unless addressed more specifically by other provisions.

PUBLIC ACTIONS

- Use greenways as corridors for pedestrian and bicycle transportation and recreation.
- Acquire strategic open space areas when possible to maintain corridors or protect important environmental assets.
- Use Greenways and Open Space as conservation development techniques in new growth areas.

CONDITIONS

Climate

Ames has launched numerous initiatives for managing conditions that contribute to climate change and continues to establish programs and projects that can be demonstrations for the State of Iowa and beyond. The City encourages sustainability through the programs and services provided to the community. From hybrid public transit buses, to bike lanes, to electric vehicle charging stations, the City continues to look for ways to help its citizens make green decisions. Balancing the need to be fiscally responsible with a commitment to a cleaner, greener community, Ames is committed to being a steward for a better environment.

Climate Action Initiatives. In 2019, the City completed a Greenhouse Gas Inventory, Vulnerability Assessment, and Renewable Energy Potentials Study. These projects provide a baseline metric to measure changing conditions. This plan identifies future initiatives to better understand the community's influence on the climate. Work has continued and the City contracted with a consultant in 2021 to prepare a Climate Action Plan.

EcoSmart. EcoSmart is the City of Ames' comprehensive strategy to reduce energy consumption and decrease its carbon footprint. Many of the city's efforts are new, while others have been around for decades. The programs and initiatives represent the City's commitment to protecting and enhancing the community's natural environment.

Natural Resources

Preserving the City's existing natural resources is vital to the community. They provide habitat for wildlife, minimize stormwater run-off, stabilize soils, influence climactic effects, offer visual appeal and serve some recreational purposes. In recognizing their value, this plan identifies the natural features present in Ames and reviews some of the current initiatives for their preservation.

When considering natural features, some lots are better for development than others from an environmental, developmental cost, and long-term maintenance standpoint (e.g., land containing steep slopes, floodplain).

The following pages identify the natural features to be considered and are combined to create the Critical Natural Resource Areas map. The map identifies areas that are suitable for development or may influence how development proceeds within identified growth areas.

Natural resource mapping for Plan 2040 relied upon geographic information system (GIS) data from multiple sources. This information is updated and relied upon by the City on a regular basis.

Natural features shown in the upcoming maps include:

i. *Floodplains*
ii. *Wetlands and Streams*
iii. *Impaired Stream Segments*
iv. *Hydric Soils*
v. *Slopes and Topography*
vi. *Watersheds*
vii. *Species Richness*
viii. *Sandy Soils and Green Infrastructure*
ix. *Vegetation*
x. *Critical Natural Resource Areas*

Haverkamp Properties
PHONE 515.232.7575 | FAX 515.292.9754
4720 MORTENSEN ROAD SUITE 105 | AMES IA 50014
INFO@HAVERKAMP-PROPERTIES.COM

To: City Council, City of Ames

CC: Kelly Diekmann, Planning and Housing Director

From: Brent Haverkamp

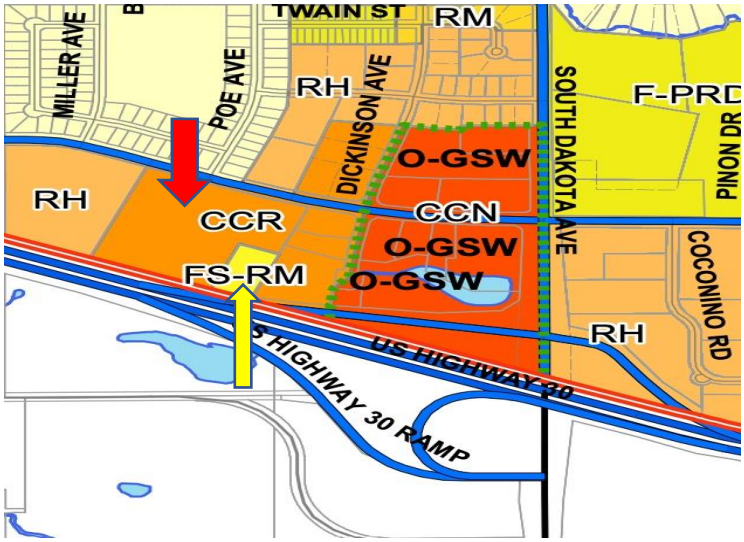
Date: October 6, 2021

RE: Request for Map Change to the Ames Plan 2040

I am the sole owner and Manager of West Towne Condos, L.C. ("West Towne"), an apartment and business community that resides in West Ames off Mortensen Rd. Currently this property resides in the Community Commercial/Residential (CCR) Zoning designation.

The CCR Zoning has the following definitions, Sec.29.806: "Residential uses are permitted only in combination with a commercial building and only above the first floor, which shall be devoted to commercial space." One of the permitted uses for the first floor is defined as "Short-Term Lodging."

When this property was developed, the first-floor spaces were finished with a mixture of commercial and "Short-Term Lodging." You can see the designated area on the map below (red arrow). This is a unique zoning designation that is not widely used in the City of Ames.



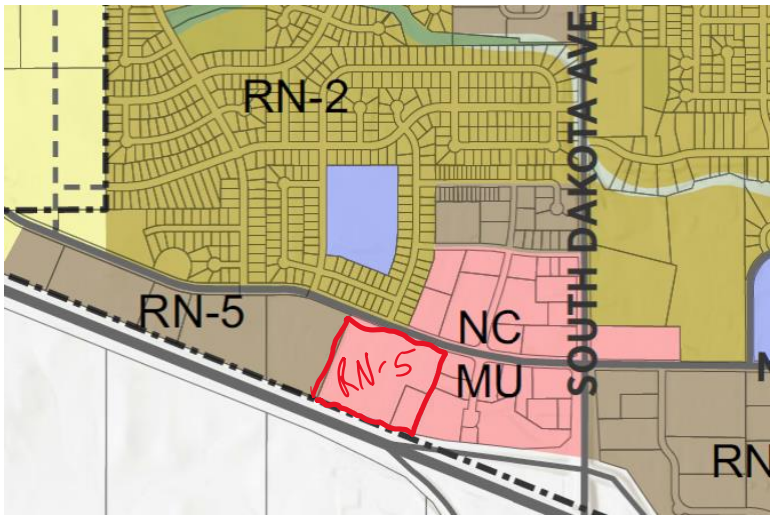
While the West Towne property that was developed starting in 2006 is included in this CCR Zoning, the three additional buildings that were developed in 2012 in the very same lot are zoned for medium density zoning (yellow arrow).

In conversations with Kelly Diekmann from Planning and Housing we believe that a change to the Ames Plan 2040 would be the best solution possible.

The Plan 2040 proposes a designation of Neighborhood Core which is much like the current CCR land use designation, meaning that it would continue to restrict the first floor to Short-Term Lodging.

We believe that normal high-density zoning would help to best serve the community. There are multiple reasons that have led us to make this request to better serve the residents of Ames.

- There is a certain amount of difficulty in attracting the type of resident who is looking for Short-Term Lodging as opposed to more permanent rental housing. They tend to be a person who is more transient in nature and not providing the long-term benefit to the community that we all would like to see.
- In working with federal financing authorities such as Fannie, Freddie, and HUD, they view the transient nature of Short-Term Lodging in a negative light and will often not finance such a property.
- Short-term lodging both in Ames and the greater region has been developing into it's own sub-industry with the addition of businesses such as TownePlace, GrandStay, Staybridge Suites, to the point where it no longer makes sense to have Short-Term Lodging mixed in with residential.



In addition, as you can see from the map above, the land immediately adjacent to the west is both currently, and proposed to be, zoned for high density zoning similar to much of the rest of Ames multi-family sites.

We would like to see the Council change the Plan 2040 to carry the RN-5 zoning designation further to the east encompassing the West Towne property.

Sincerely,

Brent Haverkamp

From: Scott Renaud
To: City Council and Mayor
Cc: Diekmann, Kelly; Sahlstrom, Eloise
Subject: 2040 Comp Plan Review
Date: Tuesday, October 12, 2021 4:01:08 PM

[External Email]

Good afternoon Mayor & Council. I have some comments on the 2040 Comp Plan. Family and work obligations kept me busy in September so this is the first time I've had time to fully review and comment on the plan. I've also read through the comments provided to Council for tonight's Council Meeting.

I've worked in Ames for 33 years on subdivisions, site developments, re-developments and associated work. I've "experienced" and worked with the 1996 comp plan and all its subsequent updates. I prepared a comp plan for a city client when the planner failed to get it done so I'm fully aware of what is required by Iowa law and the work that goes into the plan.

There is always the problem with any plan in its *clarity*. Does it do what it says it should do or is there some interpretation that is necessary to apply the plan? In the 1996 plan the City actually pulled Brian O'Connell out of retirement to explain the plan to Council. This should not be the case with this plan.

While the desire to complete the plan after 2 years of work is understandable I believe the push to complete the plan should be tempered by the fact that there is a lot of information to absorb. *While there were numerous meetings on individual topics there was very little time to review the final combination of the ingredients to get to the final stew.* There is interaction between the components that have not been addressed adequately. I think there should be an attempt to address some of these component interactions in the plan and should be done before the implementation plan phase is started.

I believe there should have been some review of the 1996 plans successes and failures before proceeding with the 2040 plan. This is most evident in the discussion by several parties of the SW growth area. I agree with much of the commentary on this area in the Council's Oct. 12th packet. The combination of significant natural resource areas and the amount of current (and future?) ISU property in this area severely limits development. The 1996 plan was poorly conceived as ***a growth priority area*** *yet in 25 years no sanitary sewer has been extended to this area.* The only true area open for development is the Doug McCay property in the SW corner of Highway 30/S.Dakota intersection. A plan for development of the McCay would be appropriate. Development of the remaining area is a waste of time and resources. There is a City policy of limiting (or outright prohibition) of sanitary sewer pump stations which is a self imposed restriction to any development of the SW area. Most communities have numerous pump stations but Ames has steadfastly refused to put in pump stations even when it is more cost effective in both the long and short term.

I agree wholeheartedly with Steve Libbey' comments concerning development density as he stated:

"*As long as the Plan relies upon perspectives that assume low-density, auto centric*

development as the standard against which all else must compete, it will not achieve the stated vision. The presumptive outlook must be turned around to support patterns of higher-density, mixed-use,and multi-modal. That is the direction of the future toward a "vital community" and patterns which run contrary to that are the ones in conflict."

The plan expresses a desire for more sustainable development which I translate as high density and more variety of development. Developers will not look at high density or niche type developments if the path of least resistance is always low-density. The City's desire to always do fringe development means there will *ALWAYS* be conflict with lower density development at the fringes especially when those fringes were once low density rural developments. This plan skirts the high density issue in the same failed manner as the 1996 plan.

The plan lacks clarity in the application of density. The plan waivers between the use of gross and net density. This is a major stumbling block when the definitions are used interchangeably and capriciously in the plan text and later during evaluation of developments. While net density is better defined the plan often uses gross density as interchangeable with net density. The use of gross density also tends to diminish or reduce the development options when there are large open spaces, greenspace, parks, and floodplains added into the consideration. If used properly, gross density could incentivize higher density developments. Net density is easy to calculate in the beginning. Gross density is best calculated at the end *after* the development is completed and with an *aggregate* group of developments.

In watching the Council meeting there were numerous comments directed to typos in the text. I have the same issue with the ***numbers***; numerous math errors or false logic used to calculate the numbers. All of the statistics are woefully out of date having used 2017 numbers as the basis for the calculations. Many of the math errors revolve around the use of gross density which is poorly defined and applied.

I dislike the way that environmentally sensitive is applied in this plan and the previous plan. The stream corridors and floodplains have been impacted long before city development has occurred. The Skunk River and Ioway Creek were channelized in the late 1880s to facilitate drainage. **Development and associated stormwater management could be used as a mechanism to fix and enhance these areas.** Many of the stream channels are highly impacted by erosion; studies indicate 30-40% of stream pollution may be from a relatively small area of bank erosion. Trees along stream banks do not perform any bank protection. Trees are an indication of poor maintenance of stream channels (as evidenced by the City's recent work on the Ioway Creek channel). Most of the trees would be considered invasive species. *The comp plan and the City's 5B ordinance are facilitating the continued degradation of the channels and streams.* The flood zone and the environmentally sensitive should be separate items or use a tiered system to better reflect what is desired and allowed for these areas. Property cannot be enhanced or fixed if it cannot be touched. Believing that "environmentally sensitive" is the same as *pristine* is foolishness.

I believe the map should be refined considerably before finalized. The City has the capability with the GIS system to be incredibly detailed in the map and follow distinct lines; property lines, right of way lines,floodways, etc. Showing vague and nonspecific lines only provides murkiness to the plan. There likely should be some wiggle room allowed to move lines but this can be allowed for in the regulation of map changes.

I will have some specific map changes that I will provide to Council after tonight's

meeting. There are lots of map details that could be addressed now rather than go through individual processes or amendments. I believe those detailed map changes will use the plan as intended rather than later when the plan is compromised by time from its original objectives and goals.

There are a couple of map changes that obviously need to happen near the airport. The airport protection zone needs to be clearly shown. This will need to be done to complement the future fringe plan. The approved FAA Master Plan in effect should already have basic requirements needed for the comp plan. In addition the Research Park expansion area to the south is insufficient; the park should be extended south another mile. The transportation plan should reflect the changes with the road system to stay out of the clear zones of the airport and future improvements to the airport.

The plan has some unintended consequences that bear mentioning. First, the plan does not deal with the major inflow and outflow of people working in Ames. This information is available census data and does impact Ames. In the recent past (2010?) the inflow was 12,000 people per day and the outflow was the same. I doubt the outflow is as high because the statistics use employer zip code and employee zip code to predict travel. Since ISU employs a lot of people that do not live in Ames or work in Ames I think the outflow numbers are suspect. However, the inflow numbers I think are real. Any observation of "rush hour" traffic on any major thoroughfares to Ames will bear this out. Ames lack of care for the commuter may be crucial in where people want to live or if they want to work in Ames. Ames' difficult development process has lifted the adjoining communities "boats" all the way to Ankeny to the south. I find it difficult to understand the concern about auto-centric development when more and more workers in Ames travel considerable distances to Ames.

The second unintended consequence is the density requirements. The ***net*** density of 3.75 units per acre means the average lot size is 11,616 square feet. Lot depths average between 130 and 150 feet which means the allowable lot width is 89 to 77 feet. Parcels are not nice even squares so some lots will need to be larger or smaller to accomplish any development. The reality of the average lot size is that expensive houses ($500K and up) will run out of room for that lot size. There is a market for those homes so where do they go? Either to other communities or in rural subdivisions. The future fringe plan will do nothing to stop this other than pushing those houses farther from Ames and more auto traffic into or out of Ames. Is it beneficial for Ames to voluntarily segregate the community where the wealthier commuters have no stake in Ames? Lest you think this is a non-problem, think of the person moving from a high cost housing area to Ames that is in the low middle-class that has $300K equity in a house to move. These high cost housing refugees can afford to move up and will move up if given the opportunity and lack of alternatives.

If the *gross density* is 6.0 (as used in most of the 2040 plan assumptions), then the *net density* will be closer to 8 units per acre. This means that 20-30% of the housing market will be conventional single family houses and the remaining 70-80% will be townhome, row house or denser. If the City does not properly clear the way for denser development in the comp plan, then the plan is a lie and will not do what it is intended or stated to do. Why create a plan that creates nothing but future conflicts? The City needs to recognize that rural water in particular facilitates the circumcising of the 2040 plan by creating "easy" rural developments for larger lots.

The above is a summary of my comments. I actually have 300-400 comments on the plan as

I've gone through the text and figures. A lot of the comments concern definitions or lack thereof. For example; one such definition required is "*enhanced landscaping*". That will mean something different to every person. The real impact is during implementation and promulgation of ordinances or change/enhancement to ordinances. There are numerous such statements in the plan without any supporting documentation or definition. The small statement is a significant endeavor when you consider the complexity and application of the current landscaping ordinance.

Thanks for your time. Appreciate all your efforts. Take care. Scott.
--
Scott Renaud, P.E.
Renaud Engineering, LLC
Cell 515-418-1877
EM: renaudeng@gmail.com

Attachment B

Planning & Zoning Commission Comments

Sept 15, 2021

There was a general discussion of Ames Plan 2040 and this is a summary provided by staff of the meeting.

Discussion Topics Included:

- **Protecting the Character of Existing Neighborhoods**
  Concern that existing housing (that is able to serve lower income residents) be retained given that new construction is at a different price point. General interest in increasing housing options, including "affordable" starter homes.

  Staff commented that Ames Plan 2040 was not a neighborhood "protectionist" plan. Not a lock-down against change but rather an opportunity for strategic change especially in transition areas and along corridors. Staff noted that it emphasizes compatibility for future infill within these single-family areas. The Redirection Areas could be larger scale redevelopment.

- **Owner occupancy vs. renter occupancy**
  Discussion of stabilizing character of home ownership within a neighborhood and large increase in rental units as a percentage of the City housing stock.

  Staff commented on the 60-40 housing split and enrollment increase at ISU as it impacts Ames' demographics. The trend indicates more and more rental housing households compared to ownership housing. The production of multi-family housing greatly exceeded single-family units in the past decade (78% to 22%). Staff commented on the demographics and generational proportions that impacted some of the housing development trends of the past 12 years (since the recession). Staff commented that housing projections support more single-family than multi-family going forward, although this is not stated as a policy within the Plan. The Plan also articulates a desire to minimize or avoid niche housing that is not readily adaptable to the market changes (like purpose-built student housing outside of student concentrated areas around campus.) This could be an issue with senior housing in the future.

  Discussion of housing and job sector growth and the number of commuters that come into Ames to work. Need for housing that supports the City's workforce.

  There was a short discussion of prior in and out commuting assessments for Ames.

- **Compatibility as an Implementation Strategy**
  P&Z members were glad to see compatibility addressed as a component of the Plan and will look forward to seeing how it help shapes infill in the future.

  How would the matrix be utilized?

  Staff commented that the matrix was developed as a response to the question, "What does context sensitive mean?" Its utility is yet to be determined, but it will likely act as an educational piece or bridge piece until the Zoning Ordinance is updated to address compatibility. Transition between

scale of the building as well as intensity of use will be analyzed on a case-by-case basis over the life of the Plan.

This approach will be particularly useful in addressing potential impacts of infill development. It could feed into design guidelines and may rely on sub-area plans or corridor plans to address.

- **Flexibility of the Plan**

  P&Z finds value in the flexibility of the Plan. Flexibility allows the plan to adapt to future needs and be resilient over the next 20 years, while providing the same expectations of density as the current LUPP. It seems to achieve the goal of describing our goals but includes more flexibility on reaching them. One comment noted that it seemed vague.

  Staff commented that the Plan provides guidance on where you can subdivide and annex and the location of commercial nodes with transition outward from the node. The transition between uses for infill projects will be analyzed on a case-by-case level and therefore is less predictable. The design of the Plan was in response to a perception that the current 1997 Plan was too rigid.

  Some P&Z members wondered how the development community would respond to this subjectivity; they were concerned about predictability in process. How would this Plan change approval processes?

  Staff commented that there has not been comments on that specifically, to date. Early input from developers is that the City needs more general locations to grow and that the past plan was viewed as too rigid. Staff explained that the Plan has expectations on growth areas but provides flexibility within the designations as to how the details are fleshed out.

  Staff indicated that no change to the permitting process is anticipated.

- **Character of City Gateways**

  Ames needs to carefully consider land use around gateway entry points to the City- especially as the City expands to the west and to the north.

  Staff discussed how the City has approached gateways in the past- as a corridor gateway rather than specific gateway entry points. Staff emphasized that the new chapter on Community Character will rely upon subsequent implementation measures and City actions to achieve much of the vision.

- **Implementation Chapter**

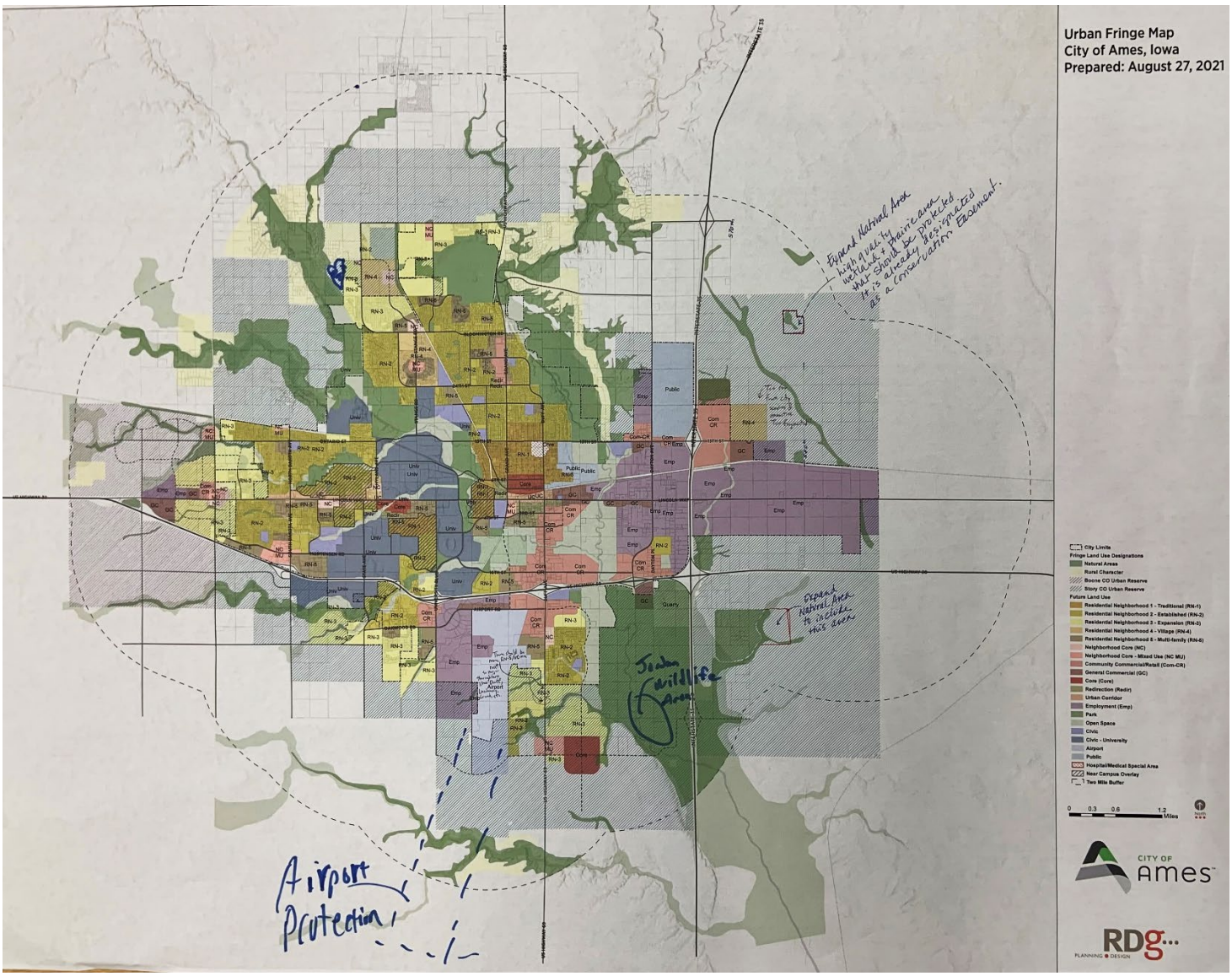
  Discussion of future review of Plan, perhaps every five years.

  Staff indicated that the Implementation chapter is still to be drafted. Staff anticipates a review period every five years to be included as part of the chapter. Additionally, the Plan highlights transparency and intentional involvement in the process of doing subsequent implementation measures. The City plans to do this by identifying interest groups, in order to promote public awareness and public involvement. The City values transparency and will continue its efforts in that regard.

- **Fringe Plan**

  Staff discussed the existing Fringe Plan and development of a new Plan. The Fringe Plan Map identifies Urban Reserve areas, in response to growth scenarios. Staff noted the likelihood of working with Boone and Story County on a new Fringe Plan.

Attachment C Open House Maps Comments



Attachment C Open House Maps Comments