

Macalester College Microbirding on a Large Scale



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MACALESTER
COLLEGE



I. Introduction

Audubon's Bird City program aims to increase awareness of birds in an urban setting as well as create measures to increase their habitat and decrease threats to their well being (i.e. window collisions). Saint Paul is on track to be recognized as a Bird City on May 14th during the city-wide International Migratory Bird Day. Next, Audubon plans to turn their focus to companies and campuses. With Audubon's help we have the opportunity to make Macalester the first officially recognized Audubon Bird Friendly Campus.

We aim to accomplish this through a similar application process used to establish Saint Paul as a Bird City. Following the list of best practices and their individuals actions we will recognize Macalester for what it is already doing to be bird friendly, pollinator friendly, and sustainable. With actions recognized as completed Macalester will be inducted into Audubon's program and will be responsible for adding actions to best practices in the future. This commitment will be recognized indefinitely by a sign posted on Macalester's campus as well as other ways the school and organization might choose to demonstrate the recognition.

The project has the potential to connect students, staff, and faculty as well as many diverse departments. Facilities and the Sustainability Office are important partners. Other departments that have been interested in taking on a role include professors from Biology, Economics, Art & Art History, and Anthropology.

It should be noted that throughout this project we define campus as the 53 acre Macalester Campus in St. Paul and exclude the Katharine Ordway Natural History

Study area. Ordway already implements certain best practices such as the presence of birdhouses and birdfeeders. This is why we chose to exclude it. By focusing on the St. Paul campus we avoid simply checking off boxes and and promote more extensive efforts for biodiversity and sustainability.

Macalester will be the first college campus to be officially recognized by Audubon for its actions to both protect and increase bird habitat. This will set Macalester apart from other campuses and will be important to strengthen their commitment to environmentalism and sustainability publically. Additionally, this commitment will create a unique relationship with Audubon and open a channel for future collaboration between the groups.

II. Area of Focus 1: Campus and Community Awareness

Birding is a highly rewarding pastime that allows students to connect with the ecosystem around them without leaving campus. Macalester is positioned well for birding activities because the Mississippi River is a major flyway through the United States. There is a large interest in birding within the faculty community but a minimal knowledge or space to participate within the student body. This could allow for collaboration between faculty and students in a non-formal way centered around the appreciation and conservation of nature.

Bird migration also pairs well with the migration of people across political borders. Birds fly thousands of miles each year in search of their seasonal homes, not unlike migratory peoples here in the United States and elsewhere. Hispanic Studies students could find similar parallels and tie the migration of birds into a student

organized event to be held on campus. Perhaps a movie screening, panel discussion, student-led workshop, or art display could all both increase bird awareness and acceptance of migratory people on campus.

Recommendations

We propose that students could install bird feeders around campus and collect data on which species they observe. Alternatively they could measure how many birds die due to window collisions, what kinds of plants attract what birds, or how to increase bird diversity on campus. We envision that students may undertake projects like communicating with facilities to inventory native and nonnative plant species found on campus. Research could be done on those species to measure their impact on Macalester's ecosystem as a whole and its impact on St. Paul. Perhaps these projects fit into existing curriculum or could be posted where majors could see them as opportunities for personal enrichment.

These activities could be further encouraged by creating a Mac Naturalist or Birders organization which could be open to students, staff, and faculty and could sponsor collaborative birding trips. Another idea would be to establish a birding kit checkout from the library, these kits would include binoculars and small local bird guides, allowing students to interact with nature in a new way.

Finally, we suggest increasing public data about birds on and around the Macalester Campus. This would include publication of the campus bird list (see section VI) and various other resources regarding Minnesota birding on the Macalester website, likely as a part of the Sustainability Office Website.

III. Area of Focus 2: Biodiversity on Campus

The addition of bird friendly plants, plants that actively attract specific birds species, bird feeders, and bird houses will both increase the presence of birds on campus and increase their accessibility to the students, staff, and faculty. As previously mentioned, we are positioned near a major flyway and our efforts are important in preserving population and biodiversity, particularly in fall, winter, and spring months. Additionally, bringing birds on campus will remind students of their existence within nature and promote connectedness with the natural world. This will help build a greater sense of responsibility across campus to engage with and protect the environment.

Minnesota Audubon outlines target species for increasing biodiversity in each biome within the state. According to their mapping, the Twin Cities are in the Prairie Hardwood Transition area. They aim to increase populations of the following species:

Forster's Tern
Wood Thrush
Red-headed Woodpecker
Louisiana Waterthrush

Prothonotary Warbler
Cerulean Warbler
Eastern Meadowlark
Yellow-headed Blackbird

Recommendations

We recommend the encouragement of biodiversity, especially the target species as outlined by Audubon, through the addition of bird houses, bird feeders, and bird friendly plants.

One step toward this effort would be the installation of bird houses around campus and the addition of Chimney Swift chimneys to green roofs to increase nesting

on campus. Artificial chimneys are preferable to birdhouses on roofs because they do not require foundational support. Additionally, they are uniquely necessary because of the trend toward removal of chimneys from old houses in neighborhoods surrounding Macalester. We propose collaboration with the sculpture class for the design and creation of the houses.

After speaking with professors, we recommend the installation of a bird feeding station to encourage birds to come to campus. According to facilities and grounds, the prairie is the most feasible place for this. Once again, this is an opportunity for collaboration with the sculpture class. A single feeding station make decreases concerns over maintenance including the process of refilling the feeders and maintaining clean grounds. Refilling the feeders could become a responsibility of birding faculty or the student workers in the Biology or Environmental Studies departments.

With the addition of bird friendly plants, especially those native to Minnesota, could provide new spaces for both nesting and feeding. Opportunities for feeding alleviate the campus of having to maintain bird feeders in the summer as they provide a naturally abundant food source. Much of this is already outlined in the landscaping master plan, we would like to emphasize the potential for creating these spaces as an alternative to unutilized lawn spaces such as the “no-mow” grass outside Janet Wallace.

IV. Area of Focus 3: Threats to Birds on Campus

Not only does the current state of the campus discourage bird activity and diversity on campus, it also poses some threats to the birds that come. Particularly, the number of buildings with large wall-to-wall windows -Janet Wallace, Weyerhauser Chapel, Kagin Commons, etc.- pose high risk of collisions and bird deaths. For example, Eric Carroll's Fall 2015 2-D Design class reported approximately one bird collision each week in the classroom. The windmill also poses a potential threat.

Recommendations

We recommend designing ways to break up reflections created by windows that cause bird deaths. A practical way to do this would be printing window clings which could become a creative and fun project for art majors. According to Facilities Services staff, window clings pose difficulty in cleaning windows but are preferential to stickers which damage the coatings on the windows. This could be an installation piece taking place on a single building or spanning multiple buildings around campus and would allow art majors to showcase their work publicly and do good for the environment. Additionally we would recommend a resolution to incorporate bird-safe glass in future construction projects on campus.

Additionally, we propose data collection regarding bird collisions preceding this project. This data would allow us to identify areas of high concern for bird collisions. Ideally, collection should happen on a routine path at a set time of day. This could be collected by students, faculty, or facilities as they come across and dispose of birds.

V. Campus Reception and Ideas To Date

The St. Paul campus of Macalester has done little to encourage bird activity and biodiversity despite demonstrated interest from multiple faculty and staff members. Various staff have approached Facilities Services about the addition of bird feeders but concerns over rodent activity and lack of a formal proposal have prevented progress on the subject. We hope that demonstrated student interest will assist in moving forward with previous ideas.

After meeting with faculty from Anthropology, Art and Art History, Biology, Economics, Facilities, Grounds, and the Sustainability Office, a few prominent recurring ideas began to emerge.

First, many faculty and staff on campus have encountered the idea of installing bird feeders. Faculty like Mark Davis, Jerald Dosch, Arjun Guneratne, and Jeff Evans all fully support the idea of installing a bird feeder and willingly offered either time or resources to help. Additionally, they each know other colleagues who would also support the idea. Nathan Lief and Jerry Nelson have also been proposed the idea and were unable to implement any changes due to fear of attracting rodents and or the seed in the feeder leaving a mess.

Second, many faculty can see an active interest in birds and birding from students on campus. For example, Mark Davis' class each spring, Animal Behavior/Ecology, often produces student birders. In this way faculty believe a Mac Birders/Naturalists club could be established to foster these student interests and promote bird awareness on campus.

Third, in accordance with the Bird Campus Minnesota Draft, Jerald Dosch proposed that birding backpacks could be supplied to the library so that they may be checked out by students. They could include essentials like a Minnesota bird guide and binoculars.

Fourth, Eric Carroll suggested a possible collaboration between the Bird Campus Minnesota project and his 2D Design class. Students would be tasked to create a window image to break up the reflection birds see to reduce window collisions.

These ideas, the positive responses, and willingness to collaborate within the Macalester faculty and staff demonstrate a strong basis of support for the project and the proposal.

VI. Mark Davis' Campus Bird List

Mark Davis has been collecting data on birds for 35 years at Macalester College and has compiled a list of species seen within the 35 acre Saint Paul campus. Species on this list could be targeted specifically to increase their presence on campus. Species like the iconic Chimney Swift that faces increasing habitat destruction as houses with chimneys are torn down and the new houses are built without them. Additionally, other species common in Saint Paul and that would be easy to attract are Tree Swallows and Bluebirds. Other species that faculty have expressed interest in seeing are Nighthawks and Red-winged Blackbirds. All of these species with the exception of Bluebirds can be found on this list and thus have already been seen on

campus. By targeting Bluebirds the diversity of species on campus would increase as well as possible Bluebird habitat, an important conservation effort.

Snow Goose
Canada Goose
Tundra Swan
Mallard
Wild Turkey
Great Blue Heron
Black-crowned Night Heron
Great Egret
White Pelican
Turkey Vulture
Red-tailed Hawk
Broad-winged Hawk
Bald Eagle
Sharp-shinned Hawk
Cooper's Hawk
American Kestrel
Merlin
Peregrine Falcon
Sandhill Crane
Killdeer
Herring Gull
Rock Pigeon
Mourning Dove
Great-horned Owl
Common Nighthawk
Chimney Swift
Ruby-throated Hummingbird
Red-bellied Woodpecker
Yellow-bellied Sapsucker
Downy Woodpecker
Hairy Woodpecker
Pileated Woodpecker
Northern Flicker
Red-eyed Vireo
Blue Jay
American Crow
Tree Swallow
Barn Swallow
Black-capped Chickadee
White-breasted Nuthatch

Brown Creeper
Ruby-crowned Kinglet
Swainson's Thrush
Hermit Thrush
American Robin
European Starling
Cedar Waxwing
Bohemian Waxwing
Tennessee Warbler
Yellow-rumped Warbler
Ovenbird
Northern Waterthrush
American Redstart
Black-and-white Warbler
Magnolia Warbler
Yellow Warbler
Nashville Warbler
Common Yellowthroat
Northern Cardinal
White-throated Sparrow
Chipping Sparrow
Red-winged Blackbird
Common Grackle
Brown-headed Cowbird
Baltimore Oriole
House Finch
Common Redpoll
American Goldfinch
Pine Siskin
House Sparrow

Dead Specimens

Fox Sparrow
Philadelphia Vireo

VII. Bird Campus Minnesota

The following list of best practices serves as an application to be admitted into the Bird Campus Minnesota. It is modified from the Bird City Minnesota application draft and is a working copy. As a part of the program, Macalester would check off the best practices that it is already participating in as a condition of admittance. After making the commitment, Macalester would add to their completed best practices over time.

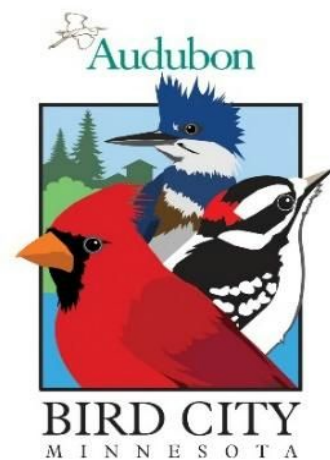
Currently Macalester has made progress on reduction of light pollution, control of harmful pesticides and insecticides, and the encouragement of native beneficial plant species, though there is still room for further improvement. Additionally, individual offices and departments have acted to reduce collisions with windows by adding visual obstructions such as stickers and decals to large windows.

VIII. Draft of Bird Campus Minnesota Program

DRAFT OF Program Requirements, Best Practices, and Example Actions

Instructions: Your campus must meet a total of 8 (or more) of the 20 criteria below including 1 required action and 7 best practices (BP) according to the specifications below. Examples of actions that meet each best practice are detailed below. Alternatively, you may detail other actions that you would like to be considered for fulfillment of any best practice.

Note: When applicable, actions from the Minnesota GreenStep Cities program have been incorporated into Bird Campus Minnesota (Based off Bird City Minnesota). Those actions are indicated with the numbers assigned to them in GreenStep program (ex. GS #18.1 refers to GreenStep Best Practice #18 action 1). If your campus is a GreenStep Campus and you have already fulfilled this action, you may count it as a Bird Campus action as well.



Required of all Bird Campus communities (complete 1 of 1)

- Adopt an official resolution and hold a celebration recognizing International Migratory Bird Day (IMBD). See www.migratorybirdday.org for ideas. Sample resolution available.

Category I: Educate and engage campus and campus in birding and conservation (complete at least 2 of 4)

- Best Practice #1: Increase awareness of birds in your campus**

Examples of actions to meet this best practice - or detail "other" action for consideration

- (1) Create a map and/or information about [birding locations](#) in your area and make it available to in print and/or online.
- (2) Develop a [birding checklist](#) for your campus and make it available in print and/or online
- (3) Install and maintain a birding kiosk and / or signage that identifies birding locations in your area
- (4) Share regular social media posts about birds and birding
- (5) Promote [Important Bird Areas \(IBAs\)](#), birding hotspots, nearby birding trails and phenomena (ex. Raptor, waterfowl or songbird migration, [Chimney Swift roosts](#) in your area
- (6) Install or promote nest cameras (but take care if/when disclosing nest locations to avoid disturbance).
- Other - provide details of other actions for consideration to meet this best practice

- Best Practice #2: Involve students in conservation and stewardship projects**

- (1) Create and maintain and/or encourage [bird feeding](#) stations across campus

It is important to figure out where the feeding stations will go, as well as how they will be designed. The prairie area would be ideal from FS's point of view. A plan to fund, clean, stock and maintain the stations will also be critical. We can fund the stations through donations and faculty support, cleaning will only take approximately 10 hours per semester (per. Jeff Evans) and restocking would occur once per day depending on the size of feeders and the quantity of feeders on campus. Our hope is to receive some assistance from facilities in doing this, but another idea that crossed our mind is the possibility of student-worker involvement. In the event that we propose that work study students be given these tasks, we are mindful that their labor comes with a cost to the college and hypothesize that with such a small increase in manual labor (approx. 10 hours per semester) the cost to the college will not be very significant.

- (2) Illustrate how your campus has a program that involves nearby schools, garden clubs, or other organizations in bird conservation activities.
- (3) Develop a program to involve students, staff, and faculty in hands-on land and stewardship projects. ([GS #18.8](#))

- (4) Research [Important Bird Areas \(IBAs\)](#) on your campus and encourage stewardship activities within them (ex. Bird and/or habitat monitoring, restoration, advocacy).
- (5) Support the creation of a stewardship group or stewardship action within existing orgs for important birding resources in your campus - an [Important Bird Area \(IBA\)](#), Bird Sanctuary, Birding Trail or similar.
- Other - provide details of other actions for consideration to meet this best practice
- Best Practice #3: Promote student science monitoring and research**
 - (1) Demonstrate that your campus is represented in at least one bird monitoring program such as the [Christmas Bird Count](#), [Great Backyard Bird Count](#), or [Chimney Swift Sit](#).
 - (2) Attach a summary of bird monitoring results and/or other data obtained from researchers or local volunteers at sites within the campus.
 - (3) Create an [eBird](#) account for your campus, designate your local birding areas as hotspots and encourage park visitors, volunteers and staff to submit sightings
 - (4) Encourage bird monitoring (ex. In conjunction with regular park programming or in cooperation with local birding groups) and submit sightings to [eBird](#)
 - (5) Encourage / support nestbox and feeder monitoring through [Nestwatch](#), [FeederWatch](#) or equivalent
 - (6) Facilitate student participation in water quality monitoring (ex. [WHEP - Wetland Health Evaluation Project](#))
 - Other - provide details of other actions for consideration to meet this best practice
- Best Practice #4: Ensure access to nature**
 - (1) Work to get traditionally underserved communities visiting / birding on your campus
 - (2) Offer multilingual programs and/or materials on birds and birding
 - (3) Develop one or more accessible nature / birding trails
 - (4) Identify and remedy gaps within your campus' system of parks, off road trails and open spaces. ([GS #18.1](#))
 - (5) Plan and budget for a network of parks, green spaces, water features and trails in all new development areas. ([GS #18.2](#))
 - (6) Measure your [campus's park score](#) and make a plan to increase your score.
 - Other - provide details of other actions for consideration to meet this best practice

Category II: Protect, restore and enhance bird habitat (complete at least 3 of 6)

- Best Practice #5: Practice conservation planning**
Examples of actions to meet this best practice - or detail "other" action for consideration

- (1) Develop/fund a conservation easement program, such as a purchase of development rights program, in collaboration with a land trust ([GS#10.5](#)) or otherwise protect existing bird habitat through ordinances, easements, fee title acquisition and other methods
- (2) Include ecological provisions in the campus' comprehensive planning process that explicitly aim to minimize open space fragmentation and/or establish a growth area with expansion criteria ([GS BP#6.4](#)).
- (3) Demonstrate that the local Chamber of Commerce (or a similar group) takes an active role in the planning process for protecting and enlarging favorable bird habitat.
- (4) Conduct a Natural Resource Inventory or Assessment ([NRI or NRA](#)); incorporate protection of priority natural systems or resources through the subdivision or development process ([GS BP#10.1](#))
- (5) Document that current campus planning seeks to provide additional bird habitat.
- Other - provide details of other actions for consideration to meet this best practice
- Best Practice #6: Create and protect habitat**

Examples of actions to meet this best practice - or detail "other" action for consideration

- (1) Attach ordinance or other evidence that existing bird habitat has legal protection.
- (2) Increase the amount of bird habitat in the campus by enlarging existing habitat, acquiring new and/or restoring parcels - creating connections wherever possible
- (3) Ensure that local rules do not restrict [brush piles](#) that provide essential cover for birds

Brush piles are not feasible on the Macalester campus.

- (4) Provide information to property owners on how to create and enhance backyard habitat for birds and/or participate in bird-friendly habitat certification programs (ex. [National Wildlife Federation](#), [Audubon Native Plants for Native Birds](#) - spring 2016)
- (5) Assess your acreage of manicured green space (mowed grass) and document conversion of some of that area to low maintenance turf or native landscaping. (similar to [GS #18.5](#))

This process is underway. Beneficial changes in campus landscaping have been made each summer in recent years which can be documented in Facilities Services' records and the landscaping master plan.

- (6) Restore habitat in power line and pipeline rights-of-way.
- (7) Certify at least one golf course in the [Audubon Cooperative Sanctuary Program](#) ([GS BP#18.6](#)).

- Other - provide details of other actions for consideration to meet this best practice

- Best Practice #7: Promote use of native and beneficial plant species**

- (1) Develop and disseminate recommendations for students on preferred plantings for birds
- (2) Create demonstration areas with signage to promote bird-friendly plantings
- (3) Participate in [existing "pollinator friendly" programs](#) and / or develop a program to provide pollinator habitat
- (4) Increase the number and proportion of locally sourced native plants used in campus projects and encourage similar standards for new development

The landscaping master plan has started the process of sourcing native plants. This trend is planned to continue its growth each year.

- Other - provide details of other actions for consideration to meet this best practice

- Best Practice #8: Control invasive and detrimental species**

- (1) Show how the campus offers the public information on control and removal of invasive plant species (ex. buckthorn, garlic mustard and purple loosestrife).
- (2) Actively manage species that are having a detrimental impact on habitat or wildlife (ex. Cats, White-tailed Deer, etc.)
- (3) Actively manage invasive plant species (ex. buckthorn, garlic mustard and purple loosestrife)

Facilities Services has a fully developed integrated pest management plan for the St. Paul campus.

- (4) Educate students about management of invasive plant species on private property (ex. Conduct a workshop and/or involve students in invasive species removal projects)
- Other - provide details of other actions for consideration to meet this best practice

- Best Practice #9: Create and protect nesting opportunities**

- (1) Develop a policy to avoid trimming of trees and shrubs on campus lands from early May until mid-July to allow tree and shrub nesting species to complete nesting. Encourage this practice on private lands as well.

This is the current process practiced on campus except in cases that require special attention.

- (2) Develop a policy to delay mowing of road ditches, storm water retention ponding basins and other grasslands until August 1st to allow ground nesting species to complete nesting

This does not apply/is not possible to our campus.

- (3) Develop a [risk tree management policy](#) that allows, whenever possible, dead trees to remain standing as a nesting and foraging resource for birds

This does not apply/is not possible to our campus.

- (4) Encourage the use of nest boxes / structures including not only creation, siting, and installation but also maintenance and monitoring. Keep records of structures and usage.

There is a concern regarding funding streams as well as continuing maintenance responsibilities.

- Other - provide details for consideration to meet this best practice

Best Practice #10: Ensure clean water in natural waterways

- (1) Encourage and support the creation of [rain-gardens](#) on private and public land

There are rain gardens on campus but we would aim to increase their prevalence.

- (2) [Host / sponsor training on planting for clean water](#)
- (3) Adopt low-impact design standards that infiltrate or retain all 2 inch, 24-hour storm water events on site. ([GS #18.4](#))
- (4) Use sources of nonpotable water, or surface/rain water for irrigation. ([GS #18.5c](#))
- (5) Support a multi-party campus conversation around improving local water quality. ([GS BP#19.2](#))
- Other - provide details of other actions for consideration to meet this best practice

Category III: Reduce Threats to birds (complete at least 2 of 5)

Best Practice #11: Reduce collisions with windows

Examples of actions to meet this best practice - or detail "other" action for consideration

- (1) Demonstrate that your campus provides students, staff, and faculty living off campus with information on how to protect birds from window-strikes
- (2) Adopt [bird-friendly design](#) practices for all new buildings
- (3) Assess all current buildings for bird collision problems
- (4) Develop an action plan for fixing existing collision problems at buildings
- (5) Implement action plan for fixing existing collision problems at buildings

Various classrooms and offices in Janet Wallace have added decals to their windows to prevent collisions but there is no official institutional action plan.

- (6) Develop comprehensive guidelines or requirements for addressing bird-safety in the design of buildings in the campus.

This would require discussion with senior staff and the consultation of architects familiar with bird-safe construction

- Other - provide details of other actions for consideration to meet this best practice

Best Practice #12: Reduce collisions with other man-made structures

- (1) Follow federal guidelines for siting and operations of [wind power facilities](#) to study and reduce impacts on birds and other wildlife

According to Arjun Guneratne, the Macalester windmill poses little to no threat to birds because of its small size.

- (2) Follow federal guidelines for siting and operations of [power lines](#) to study and reduce impacts on birds and other wildlife
- (3) Where vehicle collisions with birds occur, reduce speeds, post signage and/or modify corridor to reduce threat
- Other - provide details of other actions for consideration to meet this best practice

Best Practice #13: Reduce light pollution

- (1) Adhere to [Lights Out](#) operations on campus according to [Audubon's Lights Out program](#)

This would require discussion with senior staff. Facilities Services expressed concerns regarding security if lights are turned off for extended periods of time.

- (2) Inventory all campus lighting (building, facility, street) for Dark Sky compliance
- (3) Implement plan to replace inefficient fixtures (exterior building, street, parking lot/ramp and traffic lighting) with Dark-Sky compliant, energy efficient, automatic dimming lighting technologies ([GS#4.6](#), [4.7](#) and [4.8](#))
- (4) Require energy efficient, Dark-Sky compliant new or replacement outdoor lighting fixtures on campus-owned buildings and facilities ([GS#4.1](#))

The International Dark-Sky Association (IDA) is the recognized authority on light pollution and is the leading organization combating light pollution worldwide.

- Other - provide details of other actions for consideration to meet this best practice

Best Practice #14: Reduce the threat of pesticides and other toxins ([GS 18.5a](#))

- (1) Demonstrate that the campus's pesticide management program reduces the use of toxins, takes advantage of the least toxic choice(s) and that you are following manufacturers guidelines in application.
- (2) Adopt [USFWS Pollinator Guidelines](#) or similar pollinator-friendly ordinance / policy.

There is progress toward meeting these goals with the Integrated Pest Management Plan.

- Other - provide details of other actions for consideration to meet this best practice
- Best Practice #15: Reduce climate impacts**
 - (1) Develop a climate action plan as part of comprehensive plans or in a separate policy document to reduce energy use and carbon emissions ([GS#6.5](#))
 - (2) Demonstrate a decrease in energy use and carbon emissions through operational or building design changes.

With help from you, Suzanne Hanson, we can track information and demonstrate a decrease in energy use. We understand that Macalester is in the process of launching a large initiative to drive down energy consumption over the next 5 years, and we believe that our proposal would be an excellent compliment to that initiative.

- Other - provide details of other actions for consideration to meet this best practice

IX. Conclusion

Macalester College has already demonstrated its commitment to sustainability by incorporating the idea within the Sustainable Landscape Master Plan, the ten year Strategic Plan and signing onto commitments such as becoming zero waste by 2020 and carbon neutral by 2025. Audubon's Bird Campus Program seeks to recognize those achievements and to use those actions among other identifiable actions to build a framework with which to base future sustainable actions. Macalester, as a Bird Friendly Campus recognized by Audubon, will add an additional focus of bird conservation to its sustainability plans with the aim to increase bird habitat, decrease threats (window collisions, etc.), and further engage members of the campus

community with the local birds. These actions will stand to increase individual's' connectedness to nature and willingness to contribute to sustainability practices within their own life. Using Macalester as a model, people on campus, whether they be a student, staff, or faculty member, will enjoy the mental and physical health benefits that come with increased access to nature as well as opportunities to observe sustainable practices worth emulating from an institution they trust.

Thank you for considering our proposal, we appreciate your time in considering the actions and changes stated, and look forward to future correspondence.

Appendix of Staff and Faculty Input

MARK DAVIS - Mark talked about having strategic nest boxes. He suggested trying to attract tree swallows and bluebirds because of their preference for open spaces like we have on campus. Perhaps starting with experimental boxes places throughout campus and noting which attract the most species or which go through the most seed would be interesting. Additionally we talked about utilizing green roof space. Problems with that would be that it is higher than birds know to look for food and are relatively uncovered by trees which could scare birds due to predation by aerial visual predators. A better idea arose of putting a chimney swift chimney on one of the roofs, perhaps Olin Rice. The last idea that came up was the creation of a Mac Naturalists/Birding club to help promote student interest and involvement on birding on campus and beyond. Each year he generates student interest in his classes but with his upcoming retirement it is unclear what the future of on-campus interest will be. He gave us the campus bird list.

JERALD DOSCH - In the meeting with Professor Dosch we discussed the feasibility of implementing the outlined best practices on campus and got his input on other possible practices to include in our outline. One suggestion he had was to implement feeders at the eco house and making maintenance a part of their residency. Also, a major focus of the conversation was also deciding on whether or not to include Ordway in our definition of 'campus' throughout the project. We decided that we should not include Ordway because, while it could check off a lot of best practices, it would then hold back the amount of actual change instigated by the project.

ARJUN GUNERATNE - We also met with Professor Guneratne about his thoughts on the established best practices and asked if he had any additions to make. He suggested that rather than adding multiple scattered bird feeders to establish a feeding station for easier filling/maintenance. He also suggested beginning to regularly count the dead birds found around each building to locate main concern areas. He has approached facilities about adding feeders to campus before but was turned down because of facilities' concern about rodents.

NATHAN LIEF & JERRY NELSON - The meeting with Nathan from facilities and the head of the grounds crew was the first step in assessing whether the ideas we have outlined and gathered from other meetings is feasible on campus. He favored the idea of bird feeders in the prairie, a place where spilling seed and cleanliness are less of a concern, but echoed his past concerns about a rodent issue. He was skeptical of ideas to add window clings or stickers as visual barriers as well as the idea of making the feeders the responsibility of MULCH and the Eco House and concerned about the feasibility of making structural additions to the green roofs. We also got detailed feedback on our first draft of Bird Campus guidelines. His suggestions for moving forward were to identify funding streams and partners in this project and take the ideas to senior administration and student affairs where more definitive decisions can be made.

JEFF EVANS - Jeff suggested we propose to plant more bird friendly plants and trees around campus. This is not very congruent with facilities' plan which focused more on ease of upkeep and hardiness for a Minnesota climate. Jeff wanted plants that

would actively attract and provide a habitat for birds. Ideally we could find plants that would accomplish both. He also suggested we use husked sunflower seeds for birds which are relatively low mess and cheap. Suggested we could attract night hawks and red winged blackbirds. Also student involvement in Audubon's winter bird count could be a way to increase student engagement. Said we need to estimate exactly how many hours we would need from facilities for maintenance and that we could use student workers for the bulk of the work. Estimated no more than ten hours a semester.

ERIC CARROLL - We spoke with Eric Carroll after learning that he had experienced problems with birds hitting the windows of his classroom in the studio art building with a fair amount of frequency. In the fall of 2015 this inspired Eric to have his 2-D Design class to design stickers for windows that would be sight obstructions in the glass. Because of budgeting limitations they were not able to print many of these stickers but, provided there is interest, viability, and funding, he would like to be a partner in the future and re-establish this project in future classes to create artistic sight obstructions across campus. We also spoke about other potential installation options, both with himself and other art professors, following Nathan Lief's concerns about window clings and stickers. He suggested we work with Stan Sears, the sculpture professor, in designing potential future birdhouses and feeders.