

## Appendices to *Waubesa Wetlands: New Look at an Old Gem* (Zedler, J. B., online 2017)

Six appendices supplement the eBook text

<http://www.town.dunn.wi.us/land-use/historic-documents/>

Appendix 1: **International links**: Waubesa Wetlands and countries around the world.

Appendix 2: Key to numbers on the **historical vegetation map**.

Appendix 3: **Birds** using Waubesa Wetlands and their wintering homes.

Appendix 4: **Molluscs** among tussocks of *Carex stricta*.

Appendix 5: Wisconsin **State Natural Area #114** (WDNR description plus map)

Appendix 6: Lepidoptera (**Butterflies**) and Odonata (**Dragonflies, Damselflies**)

The **lists of species in Appendices 4 and 6 are works in progress**. Additions and corrections are welcome. Until there is a formal databank for Waubesa Wetlands, volunteers are welcome to accumulate data on sightings for intermittent updating of these initial records. Anyone wishing to serve as an archivist for some or all taxonomic groups, please email [jbzedler@wisc.edu](mailto:jbzedler@wisc.edu).

## **Appendix 1. International links between Waubesa Wetlands and countries around the world.**

International students who pursued careers in academia, carried lessons learned at Waubesa Wetlands to their next-generation students in their home countries. Professor DeWitt recalls students from: **India** (Puneet Kishor), **Brazil** (Carlos A. M. Goncalves), **Indonesia** (Manuwoto), and **South Korea** (Sool Kim). More recently, Cal DeWitt (2016) was invited to advise **The Vatican**.

From 1998-2016, international grad students studied Waubesa and other Dane County wetlands, published their work in international journals, and maintained their 'wetland links' upon returning home: Dr. Roberto Lindig-Cisneros, from Mexico City, studied wetland weeds and is now a professor at UNAM-Morelia, **Mexico**; he was named UW Nelson Institute's Distinguished Alumnus in 2016. Isabel Rojas, from **Chile**, earned her MS studying effects of wetland weeds; she is now researching trees that are invading Chilean wetlands for her PhD. Anastasia Allen, MS, researched restoration of subtropical wetland forests in Jalisco, **Mexico**; now she is a professional writer in Montana. Julia Wilcox, MS, studied wetland weed invasions and moved to Avignon, **France**, where she is working toward a PhD. Steven Hall worked on invasive *Typha* control methods in Wisconsin and Michoacán, **Mexico**, for his MS; after his PhD and postdoc work, he became a professor at Iowa State U. Nicholas Galleguillos, from Santiago, **Chile**, tested wetland weed herbicides and received his MS and returned to Chile as an environmental consultant. Dr. Hem Nalini Morzaria-Luna, from Mexico City, obtained her PhD studying wetland plant interactions. She then surveyed wetlands along **Mexico's** Gulf of California before joining NOAA's Fisheries Research Center in Seattle. Dr. Xuellian Guo, from Kunming Forestry U., assessed denitrification in wetlands, then returned to western **China** to research nitrogen dynamics at Napahai Wetland.

**Undergraduates also benefited** from research approaches developed in Waubesa Wetlands. In 2014, 10 UW undergrads used Zedler's field sampling methods to study wetland-upland ecotones (edges) in the **Chilean Patagonia**.

Further links developed with collaborations and requests for advice on wetland restoration. Joy Zedler helped open **South Korea's** National Restoration Research Center (Temperton et al. 2014). Earlier, she led an international collaboration to advise on how best to restore artificially desalinized coastal wetlands in the U.S., **Australia**, and **South Africa** (Leaflet #39; Zedler et al. 1990), and she advised a national park in **Iraq** to incorporate Traditional Ecological Knowledge into plans (Zedler 2016). **Japan** learned about wetland management in July 2017, when their NHK Public TV staff filmed Zedler for a program on wetlands in Hokkaido. Zedler noted the parallels between our wetlands' support of Sandhill cranes and Kushiro Wetland's support of the Red-crowned crane, which is non-migratory on the island of Hokkaido. In both cases, the cranes' wetland is vulnerable to land uses that alter water quantity and quality. In Kushiro Wetland, river channelization and levees designed to reduce flooding of the coastal city of Kushiro cut off critical surface water supplies and caused the wetland soil to dry and crack. Re-meandering of the lower Kushiro River rewetted the cranes' habitat (Takayo Nagasawa, Cinemic, NYC, pers. comm.).

**Research and education in Waubesa Wetlands advanced wetland science and enriched knowledge of wetlands around the world.**

## Appendix 2. Key to numbered patches on the historical vegetation map.

This is an abridged version of the field notes that accompanied the field notes of Bedford et al. (1974):

1. "A major spring area. Old field, bur oak (*Quercus macrocarpa*) and black cherry (*Prunus serotina*) are on the hillside above and around the spring.
2. "Spring area ponded since 1962. The flow is southeast toward the main channel. The general area is disturbed; reed canary grass (*Phalaris arundinacea*) is dominant.
3. "Black willow (*Salix nigra*) and sandbar willow (*Salix interior*) area. The spring to the southwest has been used...by grazing animals....horse pasture (to west) does not include the spring.
4. "Wooded area now under development...A ravine runs through construction area and may be carrying some soil from erosion toward the marsh.
5. "Floating mat of bur reed (*Sparganium eurycarpum*) and cattail (*Typha latifolia*). The spring to the southwest is well-defined up to this area, but here the flow spreads out, apparently under a floating mat. Snipe were found here in February, 1973.
6. "Pond created since 1962 by power line berm...contains a large population of Blanding's turtles.
7. "Sedge meadow with forbs. Tussock sedge (*Carex stricta*) and bluejoint (*Calamagrostis canadensis*) are locally dominant; some *Carex aquatilis*, goldenrods (*Solidago* spp.), asters (*Aster* spp.), scattered shrubs, cattails, and marsh dock (*Rumex orbiculatus*) are present.
8. "Largest shrub area in the marsh, with dense red-osier dogwood (*Cornus stolonifera*) and willows on sedges with some forbs. The willows include *Salix petiolaris*, *S. bebbiana*, and *S. discolor*. Some bog birch (*Betula* sp. [*sandbergii*?]) was also found.
9. "Sedge-grass area with a few fen plants; not as good a fen as areas 14 and 16.
10. "Large spring, disturbed by construction, with a wall of stone and soil. This flow apparently influences a large area of the marsh...
11. "Shrub area, dense red-osier dogwood and willow.
12. "Sedge-grass area with buried telephone cable.
13. "South edge of fen area. Bog birch, willow, and red-osier dogwood are growing with sedge, grass, cattail, and scattered fen plants.
14. "Fen. Some indicator plants here are brome grass (*Bromus* sp. [*kalmia*?]), aster (*Aster junciformis*), Riddell's goldenrod (*Solidago riddellii*), grass of Parnassus (*Parnassia glauca*), sage willow (*Salix candida*), fall-blooming willow (*S. serissima*), bog birch, and lesser fringed gentian (*Gentiana procera*).
15. "Red-osier dogwood, willows, and some of the fen species listed in area 14.
16. "Fen and spring. See area 14 for plant list. A small ditch...contains watercress (*Nasturtium officinale*) and scuds (shrimp [amphipods]). This spring area is the largest in the marsh and is excellent for winter waterfowl use...Water quality appears to be excellent...not...altered. Purple bacteria (or algae?) are a special feature of interest for teaching and research.
17. "Sedge-grass area with *Muhlenbergia* sp. Areas 14-17 show little disturbance.
18. "Sedge-grass as in area 7, but with forbs scattered and much less dense.
19. "Area which has received soil from upland field nearby. Indicator plants of mud flow found here are monkey flower (*Mimulus ringens*), boneset (*Eupatorium perfoliatum*), bur marigold (*Bidens coronata*), smartweed (*Polygonum coccineum*), bull thistle (*Cirsium vulgare*), ditch stonecrop (*Penthorum sedoides*). Bluejoint grass is dominant. Tufted loosestrife (*Lysimachia thyrsoiflora*) and willow herb (*Epilobium coloratum*) were also seen.
20. "Area of proposed real estate development... [excellent for hawk or owl nesting as noted in #25]
21. "Possible floating mat. Dominants are *Carex lacustris* and *Carex lasiocarpa*. Cattail, boneset, tufted loosestrife, some bur reed are also present. The area shows little disturbance.
22. "*Carex lacustris* area with little disturbance.
23. "Bluejoint grass with some shrub invasion.
24. "Narrow-leaf cattail (*Typha angustifolia*) edge, with river bulrush (*Scirpus fluviatilis*) and soft-stem bulrush (*S. validus*) included. This cattail is found along most of the edge facing the lake. ...
25. "Steep grazed hillside with some oak invasion and a few large bur and white oaks (*Quercus alba*) and basswoods (*Tilia americana*)....excellent for animal dens...hawk or owl nesting (as is # 20).
26. "*Carex lacustris* C. *stricta*, bluejoint grass area. Kills by a large predator...owl pellets...in woods to the northwest. Turk's cap lily (*Lilium michiganense*) was found here.
27. "The flow of water here is muddy, in contrast to clear flow from two other outlets south of here....
28. "Red-osier dogwood and willow shrubs invading *Carix stricta*.
29. "Pasture used for horses....mostly reed canary grass....
30. "Spring and meander cut off by ditching. The small spring appears to have received silt from cultivation on the hillside immediately to the north.
31. "Grazed sedge meadow with an unusually large number of anthills.
32. "Small wetland area. Open water is indicated for spring or high water conditions. Note the drainage ditches.
33. "Additional hillside buffer...this area and the stream below it will have an influence on the high quality of the wetlands. Strict water and erosion control measures are recommended....

## Wisconsin State Natural Area: Waubesa Wetlands (No. 114, Wisconsin Department of Natural Resources)

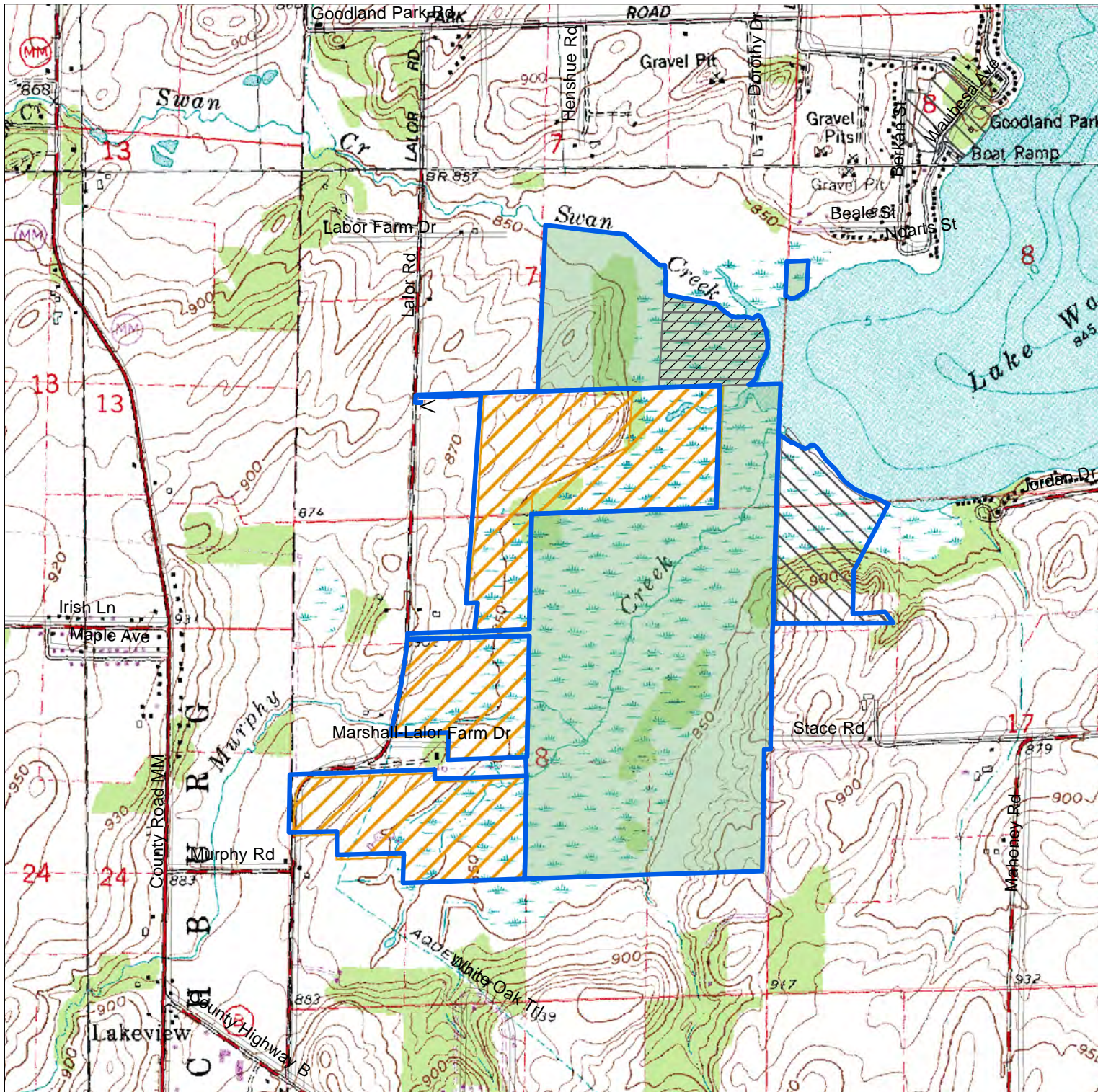


Photo by Nadia Olker and Cal Dewitt

**Map (next page) and Location:** Dane County. T6N-R10E, Section 7, 8, 17, 18. 567 acres.

### Description

Located in an old lobe of Lake Waubesa along its southwest shore, Waubesa Wetlands is one of the highest quality and most diverse wetlands remaining in southern Wisconsin. Nine major springs and numerous smaller ones located within and around the area provide the wetland with an abundance of high quality water. The extensive wetlands and high quality of the water contribute significantly to the water quality of Lake Waubesa. Two inlet streams are also present - Murphy Creek and Swan Creek. Peat deposits - up to 95' deep in places - underlie a mix of sedge meadow, fen, and shrub-carr communities. The sedge meadow is a complex of different species that vary in abundance and structure in response to the complex hydrological system. Other parts of the site feature quaking sedge mats, calcareous fens, springs and streams with submerged aquatics, and deep spring cones lined with filamentous algae and purple-colored bacteria. The carbonate rich fens feature numerous species including grass-of-parnassus, Riddell's goldenrod, northern bog aster, lesser fringed gentian, and sage willow. Other abundant wetland species are common lake sedge, tussock sedge, American woolly-fruited sedge, common bur-reed, swamp loosestrife, American water horehound, blue-joint grass, and numerous asters. Bird life is diverse and features four rare species: least bittern (*Ixobrychus exilis*), American bittern (*Botaurus lentiginosus*), great blue heron (*Ardea herodias*), and black tern (*Chlidonias niger*). Other birds include sandhill crane, green heron, marsh and sedge wren, blue-winged teal, green-winged teal, and willow flycatcher. Waubesa Wetlands is owned by the DNR, The Nature Conservancy, and Dane County. It was designated a State Natural Area in 1974.

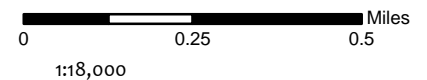


# Waubesa Wetlands State Natural Area

Dane County  
#114



-  State Natural Area
-  DNR: No Hunting
-  DNR Owned
-  DNR Easement
-  TNC: No Hunting
-  Dane County
-  Parking



The data shown on this map have been obtained from various sources, and are of varying age, reliability and resolution. This map is not intended to be used for navigation, nor is this map an authoritative source of information about legal land ownership or public access. Users of this map should confirm the ownership of land through other means in order to avoid trespassing. No warranty, expressed or implied, is made regarding accuracy, applicability for a particular use, completeness, or legality of the information depicted on this map.

## Appendix 4. Birds using Waubesa Wetlands and their wintering homes.

Abbreviations: Mex for Mexico, C.A. for Central America, Carib for the Caribbean area including the northern coast of South America, and S.A. for South America. Species with the Mex and Carib designations may include winter homes within the contiguous United States. Data were compiled by Cal DeWitt from [https://www.inaturalist.org/check\\_lists/447403-Lake-Waubesa-Watershed-Check-List](https://www.inaturalist.org/check_lists/447403-Lake-Waubesa-Watershed-Check-List), Wisconsin Society for Ornithology, iNaturalist.org, <http://wsobirds.org/checklist-of-wisconsin-birds>, <http://ebird.org/ebird/map/Cornell> Laboratory of Ornithology.

### International migratory nesting birds (n = 57)

Blue-winged Teal	<i>Anas discors</i>	Mex, C.A., Carib, S.A.
Pied-billed Grebe	<i>Podilymbus podiceps</i>	Mex, C.A., Carib, S.A.
Osprey	<i>Pandion haliaetus</i>	Mex, C.A., Carib, S.A.
Northern Harrier	<i>Circus cyaneus</i>	Mex, Carib
Red-tailed Hawk	<i>Buteo jamaicensis</i>	Mex., C.A., Carib
Sora	<i>Porzana carolina</i>	Mex, C.A., Carib, S.A.
American Coot	<i>Fulica americana</i>	Mex, C.A., Carib, S.A.
Sandhill Crane	<i>Grus canadensis</i>	S.US, Mex, Carib
Killdeer	<i>Charadrius vociferus</i>	Mex, C.A., Carib, S.A.
Spotted Sandpiper	<i>Actitis macularius</i>	Mex, C.A., Carib, S.A.
Wilson's Snipe	<i>Gallinago delicata</i>	Mex, C.A., Carib, S.A.
Mourning Dove	<i>Zenaida macroura</i>	Mex, C.A., Carib
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	Mex, C.A., Carib, S.A.
Eastern Screech-Owl	<i>Megascops asio</i>	Mex, C.A., Carib, S.A.
Great Horned Owl	<i>Bubo virginianus</i>	Mex, C.A., Carib, S.A.
Eastern Whip-poor-will	<i>Antrostomus vociferus</i>	Carib, C.A.
Ruby-throated Hummingbird	<i>Archilochus colubris</i>	Mex, C.A., Carib, S.A.
Belted Kingfisher	<i>Megaceryle alcyon</i>	Mex, C.A., Carib, S.A.
Yellow-bellied Sapsucker	<i>Sphyrapicus varius</i>	Mex, C.A., Carib
Hairy Woodpecker	<i>Picoides villosus</i>	Mex, C.A., Carib
Northern Flicker	<i>Colaptes auratus</i>	Mex, C.A., Carib
Eastern Wood-Pewee	<i>Contopus virens</i>	Mex, C.A., Carib, S.A.
Yellow-bellied Flycatcher	<i>Empidonax flaviventris</i>	Mex, C.A., Carib
Alder Flycatcher	<i>Empidonax alnorum</i>	C.A., Carib, S.A.
Willow Flycatcher	<i>Empidonax traillii</i>	Mex, C.A., Carib, S.A.
Least Flycatcher	<i>Empidonax minimus</i>	Mex, C.A., Carib
Eastern Phoebe	<i>Sayornis phoebe</i>	Mex, C.A., Carib
Eastern Kingbird	<i>Tyrannus tyrannus</i>	Mex, C.A., Carib, S.A.
Great Crested Flycatcher	<i>Myiarchus crinitis</i>	Mex, C.A., Carib, S.A.
Warbling Vireo	<i>Vireo gilvus</i>	Mex, C.A., Carib
Purple Martin	<i>Progne subis</i>	Mex, C.A., Carib, S.A.
Tree Swallow	<i>Tachycineta bicolor</i>	Mex, C.A., Carib
Barn Swallow	<i>Hirundo rustica</i>	Mex, C.A., Carib, S.A.
White-breasted Nuthatch	<i>Sitta carolinensis</i>	Mex
House Wren	<i>Troglodytes aedon</i>	Mex, C.A., Carib, S.A.
Marsh Wren	<i>Cistothorus palustris</i>	Mex
Sedge Wren	<i>Cistothorus platensis</i>	Mex, C.A., Carib, S.A.
Eastern Bluebird	<i>Sialia sialis</i>	Mex, C.A., Carib
Veery	<i>Catharus fuscescens</i>	Mex, C.A., Carib, S.A.
American Robin	<i>Turdus migratorius</i>	Mex, Carib
Gray Catbird	<i>Dumetella carolinensis</i>	Mex, C.A., Carib, S.A.
European Starling	<i>Sturnus vulgaris</i>	Mex, Carib

Common Yellowthroat	<i>Geothlypis trichas</i>	Mex, C.A., Carib
Yellow Warbler	<i>Setophaga petechia</i>	Mex, C.A., Carib, S.A.
Yellow-throated Warbler	<i>Setophaga dominica</i>	Mex, C.A., Carib
Chipping Sparrow	<i>Spizella passerina</i>	Mex, C.A., Carib
Vesper Sparrow	<i>Pooecetes gramineus</i>	Mex
Savannah Sparrow	<i>Passerculus sandwichensis</i>	Mex, C.A., Carib
Northern Cardinal	<i>Cardinalis cardinalis</i>	Mex
Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>	Mex, C.A., Carib, S.A.
Indigo Bunting	<i>Passerina cyanea</i>	Mex, C.A., Carib
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	Mex, C.A.
Eastern Meadowlark	<i>Sturnella magna</i>	Mex, C.A., Carib, S.A.
Brown-headed Cowbird	<i>Molothrus ater</i>	Mex
Baltimore Oriole	<i>Icterus galbula</i>	Mex, C.A., Carib, S.A.
House Finch	<i>Haemorphous mexicanus</i>	Mex & US
American Goldfinch	<i>Spinus tristis</i>	Mex, C.A., Carib, S.A.

### **Nesting, domestic (not international migratory (N = 16) (also listed in eBook text)**

Canada goose	<i>Branta canadensis</i>
Wood duck	<i>Aix sponsa</i>
American black duck	<i>Anas rubripes</i>
Mallard	<i>Anas platyrhynchos</i>
Ring-necked pheasant	<i>Phasianus colchicus</i>
Wild turkey	<i>Meleagris gallopavo</i>
Barred owl	<i>Strix varia</i>
Red-headed woodpecker	<i>Melanerpes erythrocephalus</i>
Red-bellied woodpecker	<i>Melanerpes carolinus</i>
Downy woodpecker	<i>Picoides pubescens</i>
Blue jay	<i>Cyanocitta cristata</i>
Black-capped chickadee	<i>Poecile atricapillus</i>
Brown thrasher	<i>Toxostoma rufum</i>
Eastern towhee	<i>Pipilo erythrophthalmus</i>
Field sparrow	<i>Spizella pusilla</i>
Common grackle	<i>Quiscalus quiscula</i>

### **Not nesting, but international migrant (N = 73 stopovers)**

American wigeon	<i>Anas americana</i>	Mex, C.A., Carib, S.A.
Northern shoveler	<i>Anas clypeata</i>	Mex, C.A., Carib, S.A.
Northern pintail	<i>Anas acuta</i>	Mex, C.A., Carib, S.A.
Green-winged Teal	<i>Anas crecca</i>	Mex, C.A., Carib
Canvasback	<i>Aythya valisineria</i>	Mex, Carib
Redhead	<i>Aythya americana</i>	Mex, C.A., Carib
Ring-necked Duck	<i>Aythya collaris</i>	Mex, C.A., Carib
Lesser scaup	<i>Aythya affinis</i>	Mex
Ruddy duck	<i>Oxyura jamaicensis</i>	Mex, C.A., Carib, S.A.
Red-throated Loon	<i>Gavia stellata</i>	Yucatan, Carib
Common loon	<i>Gavia immer</i>	SE US, Mex
Double-crested Cormorant	<i>Phalacrocorax auritus</i>	Yucatan, Carib
Great egret	<i>Ardea alba</i>	Mex, C.A., S.A.
Green heron	<i>Butorides virescens</i>	Mex, C.A., Carib
White-faced Ibis	<i>Plegadis chihi</i>	Mex, C.A.
Turkey vulture	<i>Cathartes aura</i>	Mex, C.A., Carib
Cooper's hawk	<i>Accipiter cooperii</i>	Mex., C.A., Carib
Ferruginous hawk	<i>Buteo regalis</i>	Mex

Golden eagle	<i>Aquila chrysaetos</i>	Mex, Carib
Least sandpiper	<i>Calidris minutilla</i>	Mex, C.A., Carib, S.A.
Greater yellowlegs	<i>Tringa melanoleuca</i>	Mex, C.A., Carib, S.A.
Lesser yellowlegs	<i>Tringa flavipes</i>	Mex, C.A., Carib, S.A.
Herring gull	<i>Larus argentatus</i>	Mex, C.A., Carib
Black tern	<i>Chlidonias niger</i>	Mex, C.A., Carib, S.A.
Common nighthawk	<i>Chordeiles minor</i>	Mex, C.A., Carib, S.A.
Chimney swift	<i>Chaetura pelagica</i>	Mex, C.A., Carib, S.A.
Peregrine falcon	<i>Falco peregrinus</i>	Mex, C.A., Carib, S.A.
Red-eyed Vireo	<i>Vireo olivaceus</i>	Mex, C.A., Carib, S.A.
Northern Rough-winged Swallow	<i>Stelgidopteryx serripennis</i>	Mex, C.A., Carib
Cliff swallow	<i>Petrochelidon pyrrhonota</i>	Mex, C.A., Carib, S.A.
Brown creeper	<i>Certhia americana</i>	Mex, C.A.
Blue-gray Gnatcatcher	<i>Poliottila caerulea</i>	Mex, C.A., Carib
Golden-crowned Kinglet	<i>Regulus satrapa</i>	Mex
Ruby-crowned Kinglet	<i>Regulus calendula</i>	Mex, Carib
Swainson's thrush	<i>Catharus ustulatus</i>	Mex, C.A., Carib, S.A.
Hermit thrush	<i>Catharus guttatus</i>	Mex, Carib
Cedar waxwing	<i>Bombycilla cedrorum</i>	Mex, C.A., Carib
Ovenbird	<i>Seiurus aurocapilla</i>	Mex, C.A., Carib
Northern waterthrush	<i>Parkesia noveboracensis</i>	Mex, C.A., Carib, S.A.
Golden-winged Warbler	<i>Vermivora chrysoptera</i>	Mex, C.A., Carib, S.A.
Blue-winged Warbler	<i>Vermivora cyanoptera</i>	Mex, C.A., Carib
Black-and-white Warbler	<i>Mniotilta varia</i>	Mex, C.A., Carib, S.A.
Prothonotary warbler	<i>Protonotaria citrea</i>	Mex, C.A., Carib, S.A.
Tennessee warbler	<i>Oreothlypis peregrina</i>	Mex, C.A., Carib, S.A.
Orange-crowned Warbler	<i>Oreothlypis celata</i>	Mex, C.A., Carib
Nashville warbler	<i>Oreothlypis ruficapilla</i>	Mex, C.A., Carib
Mourning warbler	<i>Geothlypis philadelphia</i>	Mex, C.A., Carib, S.A.
Kentucky warbler	<i>Geothlypis formosa</i>	Mex, C.A., Carib
Hooded warbler	<i>Setophaga citrina</i>	Mex, C.A., Carib, S.A.
American redstart	<i>Setophaga ruticilla</i>	Mex, C.A., Carib, S.A.
Cape may warbler	<i>Setophaga tigrina</i>	Mex, C.A., Carib
Northern parula	<i>Setophaga americana</i>	Mex, C.A., Carib
Magnolia warbler	<i>Setophaga magnolia</i>	Mex, C.A., Carib
Bay-breasted Warbler	<i>Setophaga castanea</i>	Mex, C.A., Carib, S.A.
Blackburnian warbler	<i>Setophaga fusca</i>	Mex, C.A., Carib, S.A.
Chestnut-sided warbler	<i>Setophaga pensylvanica</i>	Mex, C.A., Carib
Blackpoll warbler	<i>Setophaga striata</i>	Mex, C.A., Carib, S.A.
Black-throated blue warbler	<i>Setophaga caerulescens</i>	Mex, C.A., Carib
Palm warbler	<i>Setophaga palmarum</i>	Mex, C.A., Carib
Pine warbler	<i>Setophaga pinus</i>	Carib
Yellow-rumped warbler	<i>Setophaga coronata</i>	Mex, C.A., Carib, S.A.
Northern parula	<i>Setophaga americana</i>	Mex, C.A., Carib
Prairie warbler	<i>Setophaga discolor</i>	Mex, C.A., Carib
Black-throated green warbler	<i>Setophaga virens</i>	Mex, C.A., Carib
Canada warbler	<i>Cardellina canadensis</i>	Mex, C.A., Carib, S.A.
Wilson's warbler	<i>Cardellina pusilla</i>	Mex, C.A., Carib
Grasshopper sparrow	<i>Ammodramus savannarum</i>	Mex, C.A., Carib, S.A.
Baird's sparrow	<i>Ammodramus bairdii</i>	Mex
Song sparrow	<i>Melospiza melodia</i>	Mex
Swamp sparrow	<i>Melospiza georgiana</i>	Mex
White-throated sparrow	<i>Zonotrichia albicollis</i>	Mex
Brewer's blackbird	<i>Euphagus cyanocephalus</i>	Mex
Pine Siskin	<i>Spinus pinus</i>	Mex



## Not nesting, domestic (n = 48)

Greater White-fronted Goose	<i>Anser albifrons</i>	
Snow goose	<i>Chen caerulescens</i>	
Cackling goose	<i>Branta hutchinsii</i>	
Mute swan	<i>Cygnus olor</i>	
Trumpeting swan	<i>Cygnus bucciana</i>	
Tundra swan	<i>Cygnus columbianus</i>	
Gadwall	<i>Anas strepera</i>	
Greater scaup	<i>Aythya marila</i>	
Bufflehead	<i>Bucephala albeola</i>	
Common goldeneye	<i>Bucephala clangula</i>	
Hooded merganser	<i>Lophodytes cucullatus</i>	
Common merganser	<i>Mergus merganser</i>	
Red-breasted Merganser	<i>Mergus serrator</i>	
Horned grebe	<i>Podiceps auritus</i>	
Great blue heron	<i>Ardea herodias</i>	
Least bittern	<i>Ixobrychus exilis</i>	
Bald eagle	<i>Haliaeetus leucocephalus</i>	
Rough-legged Hawk	<i>Buteo lagopus</i>	
Whooping Crane- 1972	<i>Grus americana</i>	
American woodcock	<i>Scolopax minor</i>	
Pectoral sandpiper	<i>Calidris melanotos</i>	
Ring-billed Gull	<i>Larus delawarensis</i>	
Forster's tern	<i>Sterna forsteri</i>	
Bonaparte's Gull	<i>Chroicocephalus philadelphia</i>	Mex,Carib
Pileated woodpecker	<i>Dryocopus pileatus</i>	
Northern shrike	<i>Lanius excubitor</i>	
American crow	<i>Corvus brachyrhynchos</i>	
Tufted titmouse	<i>Baeolophus bicolor</i>	
Red-breasted Nuthatch	<i>Sitta canadensis</i>	
Winter wren	<i>Troglodytes hiemalis</i>	
Carolina wren	<i>Thryothorus ludovicianus</i>	
Varied thrush	<i>Ixoreus naevius</i>	
American pipit	<i>Anthus rubescens</i>	
Northern waterthrush	<i>Parkesia noveboracensis</i>	
American tree sparrow	<i>Spizella arborea</i>	(Canada)
Henslow's sparrow	<i>Ammodramus henslowii</i>	
Le Conte's sparrow	<i>Ammodramus leconteii</i>	
Nelson's sparrow	<i>Ammodramus nelsoni</i>	
Fox sparrow	<i>Passerella iliaca</i>	
Harris's sparrow	<i>Zonotrichia querula</i>	
White-crowned Sparrow	<i>Zonotrichia leucophrys</i>	
Golden-crowned Sparrow	<i>Zonotrichia atricapilla</i>	
Dark-eyed Junco	<i>Junco hyemalis</i>	(Canada)
Rusty blackbird	<i>Euphagus carolinus</i>	(Canada)
Purple finch	<i>Haemorhous purpureus</i>	
White-winged Crossbill	<i>Loxia leucoptera</i>	
Common redpoll	<i>Acanthis flammea</i>	
House sparrow	<i>Passer domesticus</i>	

## Appendix 5. Molluscs among tussocks of *Carex stricta*.

Becky Abel and Elizabeth Schroeder, both students in Dr. Calvin DeWitt's course in the Fall 1988 did a careful study of the distribution and abundance of small clams in the small pools of water between the tussock sedges (*Carex stricta*) on the Peat Mound behind our house, and in the process found snail shells in these pools, none of which were alive. They took the snail shells they found to The University of Michigan's Museum of Zoology where they were identified by Professor John B. "Jack" Burch (the distinguished Curator of Mollusks at UMMZ) and his doctoral student, Timothy Pierce. The clam was identified as belonging to the genus *Pisidium* by David Heath of the Wisconsin Department of Natural Resources. Specimens of each species were placed into the UMMZ mollusk collection. Here they are, adding to the record of biota for Waubesa:

*Aplexa hypnorum*  
*Carychium exiguum*  
*Catinella ovata*  
*Discus cronkhitei*  
*Gastrocopta pentodon*  
*Gastrocopta contracta*  
*Glyphalina* sp.  
*Hawaii miniscula*  
*Nesovitrea electrina*  
*Oxyloma retusa*  
*Stenotrema leaii leaii*  
*Stobila labyrinthica*  
*Succinea ovalis*  
*Vallonia excentrica*  
*Vertigo* sp.  
*Zonitoides arboreus*

## Appendix 6. Lepidoptera (Butterflies) and Odonata (Dragonflies, Damselflies)

For photos along with sightings in WI by date, go to <https://wisconsinbutterflies.org/butterfly/species/>

Rudimentary list of J. Zedler, summer 2017:

American copper (*Lycaena phlaeas*)  
Appalachian brown (*Satarodes appalachia*)  
Baltimore checkerspot (*Euphydryas phaeton*)  
Buckeye (*Junonia coenia*)  
Cabbage white (*Pieris rapae*)  
Common wood-nymph (*Cercyonis pegala*)  
Eastern comma (*Polygonia comma*)  
Green comma (*Polygonia faunus*) and Question mark  
Monarch (*Danaus plexippus*)  
Mourning cloak (*Nymphalis antiopa*)  
Mustard white (*Pieris napi*) No spots; cream; fine line on 4 wings  
Painted lady (*Vanessa cardui*)  
Pearl crescent (*Phyciodes tharos*)  
Red admiral (*Vanessa atalanta*)  
Red-spotted purple (*Limenitis arthemis astyanax*)  
Sootywing (*Pholisora catullus*)  
“Summer” spring azure (*Celastrina ladon neglecta*)  
Tiger swallowtail (*Papilio glaucus*)  
Viceroy (*Limenitis archippus*)

Additional species recorded by C. DeWitt, who also listed many of the above species:

Black swallowtail (*Papilio polyxenes*)  
Great spangled fritillary (*Speyeria cybele*)  
Orange sulphur (*Colias eurytheme*)  
Pipevine swallowtail (*Battus philenor*)  
Yellow swallowtail ?

**Odonata (Dragonflies and Damselflies).** The iNaturalist checklist has the following Odonata for the entire Lake Waubesa watershed:

**Dragonflies:** Widow Skimmer, Twelve-spotted Skimmer, White-faced Meadowhawk, Band-winged Meadowhawk, Autumn Meadowhawk, Black Saddlebags, Eastern Pondhawk, Dot-tailed Whiteface, Blue Dasher, Eastern Amberwing, Common Whitetail, Common Green Darner, Shadow Darner

Verified for Waubesa Wetlands in 2017:

Autumn meadowhawk (*Sympetrum vicinum*)  
Common whitetail (*Plathemis lydia*)  
Twelve-spotted Skimmer (*Libellula pulchella*)

and these **Damselflies:** Skimming Bluett, Fragile Forktail, Eastern Forktail, American Rubyspot, Ebony Jewelwing, and Slender Spreadwing.