

# Change in the Cayuga Lake Basin: Bird Life since the 1960s

## Program Notes

1) "Change in the Cayuga Lake Basin: Bird Life since the 1960s"  
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2) A child of the 1950s, I grew up with the false notion that life in the Cayuga Basin was unchanging. The weather was for conversation and the seasons dependable. There were few attractions other than the lake, gorges, and hilltop college and university. Visitors came to the Basin to be outdoors. There were no malls or big-box stores, only the Salvation Army, Dairy Queen, Purity Ice Cream, and McDonald's.

3-8) Post WWII and the Korean War, the 1960s was a rosy, carefree time—it was the era of rock 'n roll. No one thought about the environment.

9) However, something was very wrong, not just in the Basin, but also everywhere in the US. DDT was being used to kill mosquitoes and lice. The summer air often had a tang of DDT as planes and trucks sprayed this poison on the people, towns, fields, forest, and around the Cayuga Lake.

10) Structure of DDT = Dichlorodiphenyltrichloroethane  
The persistent pesticide DDT, first discovered in the late 1800s, but not really used until World War II where it was used to squelch tropical mosquitoes and lice borne disease.

11) Spraying mosquitos. The summer fields grew quiet, no grasshoppers or buzzing, and birds were vanishing.

12-17) In the 1950-60s, DDT was sprayed ubiquitously to kill the beetles spreading Dutch Elm disease fungus. Across the country, DDT was sprayed in wetlands, on shorelines, and throughout the suburbs to kill mosquitoes.

18) Delusional thinking.

19) Lethal impact of DDT on birds was first noted in the late 1950s when spraying to control the beetles that carry Dutch elm disease led to a slaughter of robins in Michigan and elsewhere. No one realized creatures were dying, until thousands of dead robins eating DDT-contaminated worms appeared. Robins were bio-accumulating DDT from earthworms.

20-23) Silent spring. Other birds fell victim, too,

24-25) DDT decimated many populations of gulls, terns, and Brown Pelicans,

26) Nearly exterminated the Peregrine Falcon in the East, and

27) Devastated most Bald Eagle and

28) Ospreys colonies in the Northeast

29) Eggs: The insidious action of DDT on birds—a poison that does not kill them outright. Instead, DDT alters the bird's calcium metabolism causing eggshell thinning, and cracking when incubated. Osprey colonies failed along the entire Atlantic seaboard.

30) BIOMAGNIFICATION

Because these poisons are persistent in the environment, they tend to concentrate in organisms as they move through the "food chains." Therefore, very slight environmental contamination can be turned into a heavy pesticide load in birds at the top of the food chain.

31) In one Long Island estuary, minute concentrations of DDT in aquatic plants and plankton resulted in deadly concentrations in gulls, terns, cormorants, mergansers, herons, and ospreys.

32-33) Rachel Carson

In 1962, scientist, activist and writer Rachel Carson's book *Silent Spring* called for a halt to the ubiquitous misuse of DDT and other pesticides. The book begins with a prophetic fable:

34) READ, "It was a spring without voices. On the mornings that had once throbbed with the dawn chorus of robins, catbirds, doves, jays, wrens, and scores of other bird voices there was now no sound; only silence lay over the fields and woods and marsh."

35) On top of this mass poisonings, bird pops also had to contend with increased hunting pressures, cultivation, diseases, and adverse weather conditions, culling their numbers even further.

36) Carson testified before JFK Council on the Environment, the precursor to the EPA.

37) Author activists Roger T Peterson Activist Public Outcry, DDT was outlawed in 1972 and the EPA was established

38) Cornell's Tom Cade, hacked healthy Peregrine Falcon, hand rearing chicks from thin eggs, and building artificial nesting platforms at Montezuma National Wildlife Refuge

39) Volunteers and Researchers at Montezuma National Wildlife Refuge getting blood and banding hacked eagle young. Healthy eggs from other states into the nests of affected breeding pairs, remove thin eggs,

40) Eagle hacking tower. Hacking is when healthy eggs from unaffected populations are substituted for damaged eggs in colonies at risk.

41) Bald Eagle nest mates.

42) Osprey hacking tower at Montezuma National Wildlife Refuge (MNWR)

43) Juvenile ospreys in MNWR hacking tower

44) Volunteers building artificial nesting platforms.

45) Without these artificial nesting habitats, ospreys could not have recovered so quickly.

46) Digging up soil w/ DDT. As much of the DDT slowly hydrolyzed, leaving the environment and the food chain, affected raptor populations began to recover. Species tottering on extermination, such as Peregrine Falcons, Bald Eagles, and Ospreys received a helping hand from dedicated researchers and volunteers who hacked offspring and provided nesting platforms.

47) It's sobering to think that many of the bird species that nearly vanished by 1970, are still making a comeback fifty years later. Affected populations, such as the ospreys and robins had recovered to their pre-DDT population densities.

48) American Robin

49) Brown Pelican Some birds like the Bald Eagle and Brown Pelican have been slower to rebound.

50) Rob Bierregaard and other researchers are finding traces of DDT, PCBs, lead, and other chemical residues continuing to appear in the blood of ospreys and countless other species. The newer, more toxic, organophosphate pesticides that have replaced the older organochlorides are less persistent, but highly toxic.

51) The proliferation of artificial nesting platforms and utility pole nest risers has enabled ospreys to recolonize the Northeast and breed throughout the Cayuga Basin.

52) Platforms provide vital nesting habitat.

53) Osprey taking off.

54) Migratory birds such as the Black-crowned Night-Heron may be picking up DDT in their tropical wintering grounds where DDT is permitted. Unhappily tropical countries are becoming dumping grounds for unsafe pesticides that are now banned in the United States.

55) Mosquito Distribution Map. All that DDT spraying had no long-term affect on mosquito distributions.

56) 2017

TURNING THE CLOCK FORWARD, WE SEE THERE HAVE BEEN MANY CHANGES IN LAND-USE AND CHANGES IN BIRD POPULATIONS THROUGHOUT THE BASIN IN THE LAST 50 YEARS.

57) Land-use chart—roughly 1970-present in central New York, some for the better, others for the worse. Continued loss of farmland, wetlands, old fields, and woodlands have changed the face of the Basin and the animals living there.

58) Map of Lake w/ Eco zones: Why does Cayuga Basin attract so many birds?

Cayuga Lake forms the edge of two Eco zones—the Eastern Great Lakes Lowlands to the north and the Northern Alleghany Plateau to the south—combining the biota of both ranges.

Today, the Basin is in the northernmost point of the distribution of a number of southern bird species and is near the southernmost boundary of many northern species, creating an unusual mix of species. This is one of the few places where...

59) Canada Warbler nests in the same forests as its southern relative, the Hooded Warbler, where the . . .

60) Northern Alder and more southern Willow flycatchers are found in the same wet old fields and the . . .

61) Yellow-bellied Sapsucker competes for nest holes with the Red-bellied Woodpecker.

62-63) Common birds breeding in the Basin today with a southern distribution extended their breeding range northward since the 70s, include the Wood Duck,

64) Arcadian Flycatcher,

65) Blue-headed Vireo,

66) Prothonotary Warbler,

67) Worm-eating warbler,

68) Fish Crow,

69) Tufted Titmouse,

70) Carolina Wren,

71) Rough-winged Swallow, populations have declined 25% but very adaptable to human activities, and the

72) Hooded Warbler.

73) Henslow Sparrow is at risk of extinction without significant conservation actions to reverse declines and reduce threats. Needs grassland habitat. Local programs to assist farmers in setting aside qualifying land for conservation are apparently successful. Local population increases in isolated cases. It has a global breeding population of 400,000, with 100% of birds living in the U.S.

74) Dark-eyed Junco N and

75) Orchard Oriole have benefited from human northward expansion.

76) Cliff Swallows have followed the expansion of road infrastructure northward, nesting on bridges, overpasses, and culverts.

77-79) Wild Turkey for one, have become plentiful across the basin and state as old fields have grown to their forested habitat.

80) Northern Cardinals have benefited tremendously throughout NYS from the northward expansion of humans and their manicured backyards into our wooded hillsides and the rest of the northeastern forests create habitat for them and other species.

81-83) Turkey Vulture: Perhaps the most noticeable newcomer to our skies is the vast number of Turkey Vultures. They hunt by scent and are attracted by just a molecules of carrion gases.

84) Bird life is dynamic rather than static, as are land uses. Other changes in the last 50 years include . . . Beautiful boreal Wood warblers formerly considered northern migrants are now breeding in the Basin.

Nashville Warbler pop peaked in 1900s from recent clearing for farming, regrowth of abandoned farm fields, and present-day clear-cut lumbering—able to maintain, or even increase numbers in a time of extensive lumbering and clearing.

## Magnolia Warbler

85) Black-throated Blue Warbler  
Black throated Green Warbler

86) Finch Mycoplasmal conjunctivitis causes blindness.  
At least 14 bird species have suffered serious decreases due to diseases. Some population changes can be expected, some of them are predictable.

87) Crows: West Nile Virus primarily affects Corvids.

88) Blue-gray Gnatcatcher and

89) Prothonotary Warblers are extending their ranges north due to the return of abandoned farmland to natural succession. More data is needed to confirm

90) Brown Thrasher populations go up and down. Get temporary increases w/ more brush growth but development is encroaching on their limited breeding habitat.

**\*\*\*Several once common wetland breeding birds are now rare in the basin were the upland game birds the:**

91) Wilson's Snipe and American Woodcock, may be extending their range northward and westward, using northern coniferous forests that are being opened up by large-scale harvesting. Hunted.

92) American Woodcock declining due to habitat loss.

93) Upland Sandpiper, Conversion of native grasslands to croplands in both North and South America has caused populations to fall.

94) Bobwhite are in sharp decline throughout the past half-century, likely owing to habitat loss and changes in agriculture.

**\*\*\*Three fluctuation populations sometimes seen in the basin are:**

95) (1) Red-headed Woodpecker, follows nuts around, suffers when beechnuts decline.

96) (2) Red-bellied Woodpecker, increased northward throughout most of their range from 1966 to 2017, No population problems.

97) (3) Purple Martin have a 35% decline due to their sensitivity to cold. The fast metabolism needs food and they starve after 4-5 days with no insects. Starling

and English sparrows steal nest sites. They are totally dependent on humans for nest habitat.

98) Northern Shrike is the only predatory songbird wintering here. No population problems. It has a large protected habitat area in Canada and Alaska. It's a northern species moving southward.

99) Purple Finch, Roger Tory Peterson famously described as a "sparrow dipped in raspberry juice." Its numbers have declined 50% because of competition with house finch.

100) Cerulean Warbler, a species of highest concern in the eastern United States because of a small total population size and significant declines throughout its range. The North American Breeding Bird Survey reports declines of 74%. Needs tall trees, like walnut trees in the Basin's Salmon Creek. Ceruleans no longer breed at Salmon Creek.

Woods still hosts Scarlet Tanagers, Hooded Warblers, and Baltimore Orioles. Two of the known pairs of Acadian Flycatchers in Tompkins County also live in the woods near or in the preserve.

101—102) Chats and Towhees are birds of the undergrowth, where their rummaging makes far more noise than you would expect for their size. Numbers down 50% as people stopped farming and their fields grew up. Later, construction of subdivisions and the continued growth of scrublands into forest made the landscape unsuitable.

**\*\*\*The destruction of wetlands for development has continued despite efforts to mitigate damages and steer construction elsewhere.**

103) Catbird populations are decreasing on what is left of the Basin's wetlands. Those species which are dependent on large tracts of wet woodlands for their existence are being hardest hit by development as roads encroach further inward, fragmenting habitats and introducing crows and into areas previous immune to their predation.

**\*\*\*Unforeseen changes in weather, human populations, land use, and other drastic changes, which are not at present foreseeable.**

104) Over the last 50 years, grassland and shrub birds have declined at an alarming rate in the Cayuga Basin. Those populations that survived the DDT era are once again under attack. Intensive new agricultural practices call for earlier mowings, interrupting many breeding cycles. Development and the regrowth of fallow fields threaten other crucial habitats. All 13 grassland birds and 12 scrubland birds in the Basin face extirpation locally and across NYS in the next decades unless immediate and intensive management measures are implemented.

105) Henslow's Sparrow, Vesper Sparrow, Grasshopper Sparrow, all of which used to be found on Mt. Pleasant.

106 Eastern Meadow Lark have lost 85% of their population statewide, which is also reflected in the Basin.

Meadowlarks can still be found in the meadow by Long Point Winery in Aurora.

Bobolink, one of my favorites Draining wetlands and woodland destruction for development above.

GRASSLAND AND SHRUB birds are declining at an alarming rate in the Cayuga Basin and the rest of NYS. Those populations that survived the DDT era are once again under attack. Intensive new agricultural practices call for earlier mowings, destroying the

107) Short-eared Owl lives in Aurora, shares same fields with Northern Harrier. Owl comes out at about 3:30 pm when harrier is finished. Fallow farmland takes habitat away from grassland birds as it quickly succeeds into shrub and forest. Each decade more grassland is lost in the Basin to developmental sprawl and reforestation. Their populations are threatened.

108) Northern Harrier populations are also suffering from habitats fragmentation, further stressing these species already under tremendous pressure from the climate, disease, and predation.

**\*\*\*Populations of birds living in early successional shrub lands are among the most steeply declining group in the Northeast. Of the group's 12 species, only the ...**

109) Willow Flycatcher is OK for now.

110) As with grassland birds, shrub habitats are also steeply declining in the Basin and NY. The decline of the Golden winged warbler 53% deduction corresponds to the northward spread of Blue-winged warbler and the loss of the Golden's preferred early successional shrub habitat.

111) The Golden-winged Warbler's 53% decline is predicated by its near relative the Blue-winged Warbler. Usually these species are separated by altitude and weather. However, climate change is interfering with these boundaries and allowing the ...

112) Blue-winged Warbler (BWWA) to expand its range into that of the Golden-winged Warbler (GWWA), where the two readily interbreed creating two distinctive hybrids,

113) Golden-winged Warbler Habitat Map

114) Lawrence's Warbler = GWWA X BWWA hybrid

115) Brewster's Warbler = BWWA X GWWA hybrid

116) Many birds are expanding their ranges north, but are suffering population declines because of habitat loss. Examples are . . .

117) Prairie Warbler

118) Whip-poor-will

119) Northern Bobwhite

120) Redheaded Woodpecker

121) Kentucky Warbler and Canada Warbler

122) Louisiana Waterthrush

123) Cerulean Warbler

124) Wood Thrush

124) Prothonotary Warbler and Worm-eating Warbler

125) Black throated Blue

126) Scarlet Tanager

### **Coniferous and High-elevation Forest Breeders Declining**

127) Olive-sided Flycatcher

128) Bay-breasted Warbler

129) Rusty Blackbird

130) Cape May Warbler

131) Tennessee Warbler

132) Merlin: Raptors as a group have benefited over the last 50 yrs. from increased environmental management and conservation efforts, which protected and enhanced their populations.

133) PEREGRINES HAVE BECOME URBAN HUNTERS, SEEN DOWNTOWN ITHACA AND TBURG and on the campuses. Bank alley on one the commons used to have had a pigeon problem that was easily delt with by the peregrine pair

nesting downtown. Another famous peregrine nest on Bradford Hall on the CU campus has entertained many passerby for decades.

134) Cooper's Hawk and Sharp-shinned Hawk comparison. Both have become more common at the Basin's bird feeders.

135) Sharpie at kill.

136) Red-Shoulder Hawks live in forested wetlands like Sapsucker Woods in Ithaca. THEY HAVE EXPANDED THEIR RANGE NORTH, AND ARE DOING OK. WETLAND AND FOREST DESTRUCTION ARE THEIR BIGGEST THREAT.

137) Red-tailed Hawks are the most common hawk in the basin.

138) Goshawk: Most owl, eagle, and other birds of prey populations have recovered from their initial bout with DDT and their populations are holding steady. However the Goshawk, and Long-eared and Short-eared Owls are declining in the Basin and across their range in New York.

139) Long-eared Owl populations have decreased in the Basin and across it's ranges in NYS

140-141) NYSEG CREW artificial nest platform with nest. Ospreys are new to the Cayuga Basin, appearing first at Montezuma Wildlife Refuge in the late 1970s. In 2000, there were less than ten pairs nesting in the Basin. Now there are over 80 breeding pairs.

142) NYSEG NYS forester Paul Paradine is dedicated to helping ospreys and all species and uses his unique resources to do so.

143) Ospreys are an adaptable species that makes itself at home around people. They are especially abundant in the Cayuga Lake Basin.

144) Osprey landing.

145) Osprey feeding nestlings fish. The first osprey spotted on Cayuga Lake was at the MNWR in 1974, followed by a failed nesting attempt in 1979. The first successful osprey nest in Central New York in over 100 years was built on a snag at the MNWR and produced two fledges in 1980.

146) Cayuga Lake Osprey Trail: Now there are over 124 osprey nest sites in the Cayuga Lake Basin and more along the Erie Canal. About 75% of these are productive nests with an 11% increase in breeding pairs each year in the Basin. Birds of Prey, such as ospreys and eagles, were the most susceptible birds to

DDT in the past, and will be the most susceptible birds to pesticides in the future. Ospreys are the bellwether to the environment.

147) Climate change will not be hard on ospreys because of their adaptability to human activities. Birds that are not as flexible will not survive in the Basin.