Nico, L.G. 1983. Avian ecological investigation of the Horseshoe Lake Recreation Area. Department of Biology, Southern Illinois University, Edwardsville. Final report submitted to Illinois Department of Conservation. i-iv + 1-80, App. 1-4.

AVIAN ECOLOGICAL INVESTIGATIONS:

HORSESHOE LAKE RECREATION AREA (MADISON COUNTY)

By

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Final Report (I)

Submitted to:

Illinois Department of Conservation
Division of Forest Resources and Natural Heritage
Lincoln Tower Plaza, 524 South Second Street
Springfield, Illinois 62706

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Methods

The methods for this investigation closely followed those set forth by the Division of Forest Resources and Natural Heritage, Illinois Department of Conservation (Appendix V).

Three transect routes totaling 21 census stops were developed (Figure 3). Transects were surveyed, one per day, on the following dates in 1983:

May - 25, 26, 29, 30.

June - 1, 2, 4, 5, 10, 18, 26, 29.

A total of 37.5 hours was spent surveying the transects. Additional time was spent at the site to complete related activities: reconnaissance and design of transect routes, placing markers and making vegetation surveys. Because transect routes were designed to include all habitat types, additional qualitative census stops were not developed; however, between mid-May and early July, qualitative searches were made in areas not covered by transects, and more intense surveys of selected sites along transect routes were made to supplement distribution data and identify uncommon species. A survey of Transect III on 28 May was not completed because of rain, but information gathered was added to qualitative survey data.

A description of census stop locations and a map showing qualitative survey routes are given in Appendix I. Unless a census stop was easily identifiable, it was marked with a 4 x 4 inch red or white metal tag nailed to a tree or attached to a metal post along with a copper tag giving the stop number. Transect I consisted of six stops (1-6) on Walker's Island; Transect II had six stops (7-12) generally parallel to Hwy 111 along the eastern side of the Lake; and Transect III included nine stops (13-21) on the Peninsula. Each transect was run from lowest to highest numbered stop.

I conducted all field surveys alone, using Nikon 7x35E binoculars.

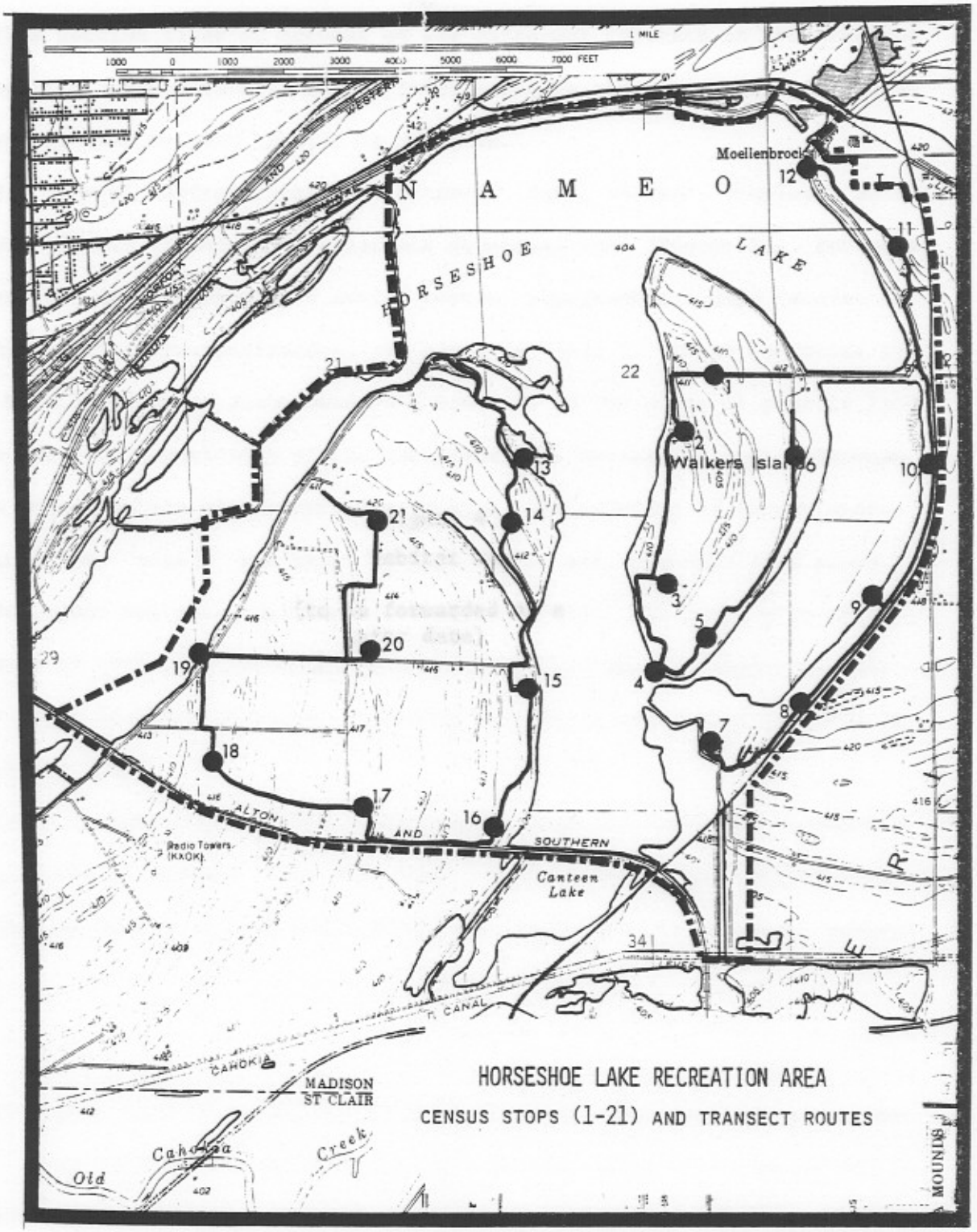
HORSESHOE LAKE RECREATION AREA
CENSUS STOPS (1-21) AND TRANSECT ROUTES
N A M E O
HORSESHOE LAKE
Moellenbrock
Walkers Island
Canteen Lake
ALTON AND SOUTHERN
Radio Towers (KXOK)
MADISON
ST CLAIR
CAHOKIA
Cahokia Creek
Old
1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

Figure 3.

Habitats and Associated Species

This section gives an account of the different habitats in the area and bird species associated with each. Information on breeding bird utilization and dependencies on each habitat is included.

Six general habitat types were present: lake, wetland, cropland, successional fields, floodplain forest and developed land (Figure 4). Estimates of acreages, derived from 1979 aerial photos, topographical maps (scale: 1:24,000) and field reconnaissance, are given in Table 1. These estimates include both 2,672 acres state-owned and some 600 to 700 acres of private land within the outer boundaries of the Horseshoe Lake Recreation Area. Because of the mosaic nature of habitats in the area, the majority of census stops contained some "edge". For example, some forest and developed land stops included other habitats, such as [illegible] wetlands. The large size and proximity of both Lake and cropland also influenced species counts at many of the stops in other habitats. Appendix II gives a vegetation synopsis for each census stop.

Figure 4

Habitat Map

(to be forwarded at a later date)

Table 2 ranks bird species in descending order by number of encounters during survey of transect legs and stops. Tables 3 and 4 give information on frequency of occurrence and distribution of species in the different habitat types.

Lake

Horseshoe Lake is a shallow natural lake with some 1,310 acres of open water. This habitat is primarily used by breeding birds as a resting or foraging area. Occasional dock blinds, nest boxes and the like are used for nesting by some species (i.e., Barn Swallow and possibly Mallard in duck blinds; European Starling in wood duck boxes). Swallows, swifts and night-

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hawks feed on flying insects above the open water. Wading birds, particularly the Black-crowned Night-Heron, are often found in the habitat; they feed in the shallow waters and perch on posts or snags. Mallards are relatively common; and Common Grackles are often seen foraging along the shore.

Wetland

Several kinds of wetland habitat, with emergent aquatic vegetation, are present in the study area. Altogether they account for some 240 acres. The majority of this habitat, about 170 acres, in an almost hydrallically isolated southeastern section of the Lake (census stop 9), is managed for waterfowl. It is usually drained during the late summer, planted with millet, then reflooded in about three weeks. The central area of this section is open water habitat during May and most of June, with rooted aquatic vegetation, primarily arrowhead and American lotus, growing in a wide dense band along the periphery.

Other wetland habitats in the study area included those dominated by cattail (eg., stop 4), some with different combinations of emergent and floating-leaf plants (eg., stop 13), and some highly seasonal wetlands within cultivated fields that are probably cultivated during dry years (eg., stop 16).

Wetland habitat is used by breeding birds as nesting, feeding and resting areas. Red-winged Blackbirds are the most abundant species; other dominant species included Mallard and Barn Swallows. Wading birds commonly use wetlands while feeding. A wetland area with high use was along the transect leg between stops 16 and 17. It consistently had the highest concentrations of Great Egrets, Little Blue Herons, and Blue-winged Teals; Snowy Egrets were encountered only there.

Cropland

Cropland, 1,100 acres, was the major terrestrial habitat in the Conservation Area; primarily wheat, corn, soybeans, and a few sunflower plots. On the Peninsula much of the cropland is still privately owned and farmed. Cropland habitats were typically monocultures that were poor in diversity and useful to birds mainly as foraging areas. Species found that are known to nest in cropland included Northern Bobwhite, Killdeer, Red-winged Blackbird, Dickcissel, and possibly Horned Lark and Eastern Meadowlark. Species often observed foraging in such habitats included American Crow, Cattle Egret, Mourning Dove and Common Grackle.

Successional Fields

Successional fields covered about 250 acres. They were characterized by thick herbaceous growth with the amount of woody vegetation increasing with the age of the field. Because the habitat structure varied considerably and sampling was relatively good, census stops within successional fields were classified into two broad types: early successional with no trees and little (eg., stop 2) or no (eg., stop 1) woody vegetation; late successional had at least some mature trees; however, the degree of tree cover was fairly variable. Stop 20, a former homesite, with relatively high percentage of canopy cover, had some bird species present that are usually associated with forest habitat.

Successional fields provide cover, nesting, and feeding habitat for many species. Characteristic species of early successional fields included Dickcissel and Field Sparrow. Species more typical of older successional fields included Yellow-billed Cuckoo, Downy Woodpecker, Black-capped Chickadee, Northern Cardinal, Carolina Wren and Yellow-breasted Chat. Northern

Bobwhite, Mourning Dove, Red-winged Blackbird, Common Grackle, Indigo Bunting and American Goldfinch were usually common in fields of all ages.

Floodplain Forest

Floodplain forest accounted for some 210 acres; most is highly fragmented. Many tracts are just woodlots or narrow zones along the lakeshore and other low areas too wet to farm. The largest forested areas survive in the southeast corner of the site; however, even this area has been highly disturbed and contains tracts of varying ages. Canopy trees typically consisted of silver maple, eastern cottonwood, box elder, ash, hackberry, American elm and willow.

Floodplain forest provides breeding birds with a wide diversity of nesting, feeding, and resting areas. Dominant species included Black-capped Chickadee, Tufted Titmouse, American Robin, Red-eyed Vireo, Common Grackle, Northern Cardinal and Indigo Bunting. Species usually associated with large tracts of bottomland forest, such as Wood Thrush and American Redstart, were not recorded.

Developed Land

This habitat type includes land that has been highly modified or has structures. Developed land in the study area accounted for approximately 120 acres and included roadways, camping and day use areas, homesites, the park office, and a sand and gravel operation on the Peninsula's point. Many buildings and some roadways shown for the Horseshoe Lake Recreation Area on the Monks Mound Quadrangle (1974, photorevised) have been demolished; however, a few homesites, some private, are still present on the Peninsula. Maps in this report have been modified to reflect some of these changes.

As would be expected, species nesting in and around developed areas consisted primarily of European Starlings, House Sparrows and Eurasian Tree

Sparrows. These species are also ground foragers and were often seen feeding along with Common Grackles and American Robins in mowed lawns and fields associated with developed land (eg., stop 11). Barn Swallows probably also nest in some buildings and such species as the American Robin probably nest in developed areas where trees are present. Where edge habitat was present, species typical of successional fields were found. Because stop 5 was a heavily wooded camping area, species characteristic of forest habitat, such as Eastern Wood-Pewee and Tufted Titmouse, were also present.

Table 1. Estimated Acreages of Major Habitat Types of the Horseshoe Lake Recreation Area (Madison County).

	Peninsula	Walker's Island	Other*	Lake	Totals
Surface or Open Water	10	-	15	1,310	1,335
Wetland	40	10	20	170	240
Cropland	850	240	10	-	1,100
Successional Fields	90	80	80	-	250
Floodplain Forest	30	60	120	-	210
Developed Land	50	10	60	-	120
Totals	1,070	400	305	1,480	3,255 ac

*All terrestrial land exclusive of Peninsula and Walker's Island; primarily lands along Hwy 111.

Table 2. List of species in order of number of encounters during survey of Transect Routes.

SPECIES	RANK	NO. OF ENCOUNTERS	% OF TOTAL ENC.
Red-winged Blackbird	1	1,180	29.45
Common Grackle	2	455	11.36
European Starling	3	295	7.36
Northern Cardinal	4	186	4.64
Indigo Bunting	5	140	3.49
Mallard	6	139	3.47
Northern Bobwhite	7	118	2.94
American Robin	8	104	2.60
Barn Swallow	9	101	2.52
American Goldfinch	10	98	2.45
Warbling Vireo	11	74	1.85
Black-capped Chickadee	12	62	1.55
Killdeer	13	61	1.52
Black-crowned Night-Heron	14	57	1.42
Chimney Swift	15	52	1.30
Common Yellowthroat	15	52	1.30
Cedar Waxwing	17	46	1.15
Mourning Dove	18	45	1.12
Bank Swallow	19	43	1.07
Eurasian Tree Sparrow	19	43	1.07
House Sparrow	21	39	.97
Yellow-billed Cuckoo	22	37	.93
Red-eyed Vireo	23	33	.83
American Crow	24	28	.70
Brown-headed Cowbird	24	28	.70
Field Sparrow	24	28	.70
Blue Jay	27	27	.67
Cattle Egret	28	26	.65
Little Blue Heron	29	24	.60
Spotted Sandpiper	30	21	.52
Brown Thrasher	31	20	.50
Great Egret	32	19	.47
Gull sp.	32	19	.49
Tufted Titmouse	32	19	.47
Eastern Meadowlark	32	19	.47
Downy Woodpecker	36	18	.45
Yellow-breasted Chat	37	15	.37
Eastern Wood-Pewee	38	14	.35
Horned Lark	39	13	.32
Dickcissel	40	12	.30
Blue-winged Teal	40	12	.30
Northern Flicker	40	12	.30
Red-bellied Woodpecker	40	12	.30
Song Sparrow	44	11	.27
Rock Dove	44	11	.27
Eastern Kingbird	44	11	.27
House Wren	47	10	.25

Table 2 (Continued)

SPECIES	RANK	NO. OF ENCOUNTERS	% OF TOTAL ENC.
Green-backed Heron	48	9	.22
Northern Oriole	48	9	.22
Carolina Wren	50	8	.20
Blue-gray Gnatcatcher	50	8	.20
Gray Catbird	50	8	.20
American Kestrel	53	6	.15
Northern Mockingbird	53	6	.15
Yellow Warbler	53	6	.15
Great Blue Heron	56	5	.12
Wood Duck	56	5	.12
White-eyed Vireo	56	5	.12
Snowy Egret	59	4	.10
Great Crested Flycatcher	59	4	.10
Willow Flycatcher	59	4	.10
American Woodcock	62	3	.07
Great Horned Owl	62	3	.07
Common Nighthawk	62	3	.07
Ruby-throated Hummingbird	62	3	.07
Belted Kingfisher	62	3	.07
Red-headed Woodpecker	62	3	.07
Empidonax sp.	62	3	.07
Purple Martin	62	3	.07
Red-tailed Hawk	70	2	.05
Bell's Vireo	70	2	.05
Yellow-crowned Night-Heron	72	1	.02
Black-throated Green Warbler	72	1	.02
Rufous-sided Towhee	72	1	.02

Table 3. Frequency of Encounters by Species at Census Stops in Different Habitat Types. Habitats with corresponding abbreviations are as follows:

L = Horseshoe Lake (surface water or open water); Stops 12 and 19.
W = Wetlands; Stops 4, 9, 13 and 16.
C_e = Cropland; Stops 6, 14 and 17.
S^e = Successional Field, Early; Stops 1 and 2.
S^o = Successional Field, Old; Stops 8, 15, 18, 20 and 21.
F = Floodplain Forest; Stops 3, 7 and 10.
D = Developed Land; Stops 5 and 11.

First number in each habitat column is percent of stops where a species was encountered (eg., Barn Swallows were recorded at one of the two stops of habitat type "L"; %=50); numbers in parenthesis are the percent of all visits where a species was encountered in a particular habitat type (eg., Barn Swallows were recorded on only one visit out of the eight visits to the stops of habitat type "L"; %=12.5).

Definition of other symbols: an asterisk (*) indicates bird(s) seen flying over or through census area without stopping; and "@" indicates a species was not encountered at census stops (but was recorded during survey).

Table (continued) Table 3 (continued)

Species	Habitats						
	L	W	C	S^e	S^o	F	D
Great Blue Heron	50(12.5)	25(6.3)	-	-	20(5)	-	-
Green-backed Heron	-	-	-	-	40(10)	-	-
Little Blue Heron	-	50(12.5)	-	-	20(5)*	-	-
Cattle Egret	-	50(12.5)	33(16.7)	-	20(5)*	-	50(12.5)*
Great Egret	50(12.5)	-	33(8.3)	-	-	-	-
Snowy Egret[@]	-	-	-	-	-	-	-
Black-cr. Night-Heron	100(62.5)	100(37.5)	-	-	20(10)*	-	-
Yel.-cr. Night-Heron	-	25(6.3)	-	-	-	-	-
Mallard	100(50)	75(50)	100(41.7)	50(12.5)*	40(10)*	-	50(12.5)*
Blue-winged Teal	-	-	-	50(12.5)*	-	-	-
Wood Duck	-	-	-	-	20(5)*	-	-
Red-Tailed Hawk	-	25(6.3)	-	-	-	-	-
American Kestrel	-	-	-	-	-	-	-
Northern Bobwhite	-	-	68(33.3)	100(62.5)	80(55)	33(16.7)	100(87.5)
Killdeer	-	50(12.5)	100(66.7)	50(37.5)	-	-	50(25)
Spotted Sandpiper	-	25(6.3)	-	-	-	-	-
American Woodcock	-	25(6.3)	-	-	-	-	-
Gull sp.	-	25(18.8)	-	-	-	-	-
Common Tern[@]	-	-	-	-	-	-	-
Rock Dove	-	-	-	-	-	-	50(25)*
Mourning Dove	-	-	33(8.3)	50(12.5)	40(35)	33(16.7)	50(12.5)
Yellow-billed Cuckoo	100(25)	-	-	50(12.5)	80(30)	33(8.3)	50(25)
Common Screech Owl[@]	-	-	-	-	-	-	-
Great Horned Owl[@]	-	-	-	-	-	-	-

Habitats: L = Lake; W = Wetland; C = Cropland; S^e = Early Successional Field; S^o = Late Successional Fields; F = Floodplain Forest; D = Developed Land.

Table 3 (continued)

Species	Habitats L	W	C	S^e	S^o	F	D
Common Nighthawk	-	-	-	-	-	-	-
Chimney Swift	-	-	33(8.3)	50(12.5)	80(35)	33(8.3)	50(25)
Ruby-thr. Hummingbird	-	-	-	-	20(5)	-	-
Belted Kingfisher[@]	-	-	-	-	-	-	-
Northern Flicker	-	-	-	-	-	33(8.3)	-
Red-bellied Woodpecker	-	-	-	-	-	33(16.7)	-
Red-headed Woodpecker[@]	-	-	-	-	-	-	-
Downy Woodpecker	-	-	-	-	60(20)	33(16.7)	-
Eastern Kingbird	-	-	-	-	-	-	50(37.5)
Great Cr. Flycatcher[@]	-	-	-	-	-	-	-
Eastern Phoebe[@]	-	-	-	-	-	-	-
Willow Flycatcher[@]	-	-	-	-	-	-	-
Empidonax sp. (no song)	-	25(6.3)	-	50(12.5)	-	-	-
Eastern Wood-Pewee	-	-	-	-	-	33(8.3)	50(50)
Horned Lark	-	-	33(16.7)	50(12.5)	-	-	-
Bank Swallow	-	25(6.3)	33(16.7)	50(12.5)	-	-	-
Barn Swallow	50(12.5)	100(75)	100(58.3)	100(25)	60(25)	-	50(25)
Purple Martin	-	-	-	-	50(12.5)	-	-
Blue Jay	100(25)*	-	-	-	20(5)	33(8.3)	50(25)
American Crow	50(12.5)*	-	33(8.3)	50(12.5)	-	-	-
Black-capped Chickadee	50(12.5)*	50(12.5)	-	50(12.5)	80(25)	100(50)	-
Tufted Titmouse	-	-	-	-	-	68(50)	50(25)
House Wren[@]	-	-	-	-	-	-	-
Carolina Wren	-	-	-	-	20(20)	-	-

Habitats: L = Lake; W = Wetland; C = Cropland; S^e = Early Successional Fields; S^o = Late Successional Fields; F = Floodplain Forest; D = Developed Land.

Table 3 (continued)

Species	Habitats						
	L	W	C	S^e	S^o	F	D
Northern Mockingbird[@]	-	-	-	-	-	-	-
Gray Catbird	-	-	-	-	40(10)	33(8.3)	-
Brown Thrasher	-	-	-	50(12.5)	40(15)	33(8.3)	-
American Robin	-	-	-	-	40(20)	100(50)	100(87.5)
Eastern Bluebird[@]	-	-	-	-	-	-	-
Blue-gray Gnatcatcher	-	-	-	-	-	33(16.7)	-
Cedar Waxwing[@]	-	-	-	-	-	-	-
European Starling	-	25(18.8)	33(8.3)	50(25)	40(15)	-	100(87.5)
White-eyed Vireo	-	-	-	-	20(5)	-	-
Bell's Vireo	-	-	-	-	20(5)	-	-
Red-Eyed Vireo	-	-	-	-	-	67(58.3)	50(12.5)
Warbling Vireo	-	-	-	-	40(5)	33(33.3)	50(25)
Yellow Warbler	-	-	-	-	40(5)	-	-
Blk.-thr. Green Warbler[@]	-	-	-	-	-	-	-
Common Yellowthroat	-	25(25)	-	100(25)	60(35)	-	-
Yellow-breasted Chat	-	-	-	50(25)	40(30)	-	-
House Sparrow	-	-	-	-	-	-	100(25)
Eurasian Tree Sparrow	-	-	-	-	-	-	50(12.5)
Eastern Meadowlark	-	-	68(16.7)	-	-	-	50(25)
Red-winged Blackbird	100(37.5)	100(100)	100(100)	100(87.5)	100(95)	33(33.3)	100(75)
Northern Oriole	-	-	-	-	-	33(8.3)	-
Common Grackle	100(50)	50(25)	100(66.7)	100(37.5)	100(85)	100(58.3)	100(50)
Brown-headed Cowbird	-	-	-	50(25)	-	-	50(12.5)
Northern Cardinal	-	25(6.3)	33(8.3)	50(25)	100(100)	100(83.3)	50(37.5)

Habitats: L = Lake; W = Wetland; C = Cropland; S^e = Early Successional Fields; S^o = Late Successional Fields; F = Floodplain Forest; D = Developed Land.

Table 3 (continued)

Species	Habitats						
	L	W	C	S^e	S^o	F	D
Indigo Bunting	-	-	33(16.7)	100(75)	100(80)	100(66.7)	100(25)
Dickcissel	-	-	-	50(37.5)	-	-	50(50)
American Goldfinch	-	25(6.3)*	-	50(50)	100(70)	-	50(25)
Rufous-sided Towhee[@]	-	-	-	-	-	-	-
Field Sparrow	-	-	-	50(50)	20(5)	-	-
Song Sparrow	-	-	-	-	-	-	50(25)

Habitats: L = Lake; W = Wetland; C = Cropland; S^e = Early Successional Field; S^o = Late Successional Fields; F = Floodplain Forest; D = Developed Land.

@ = Species observed during survey, but not at census stops (refer to section on Species Accounts).

* = Bird(s) seen flying over or through census area without stopping.

Table 4. Species Distribution by Habitat Type. Dominant had an encounter percentage of 50% or more in both encounter categories (Table 3) for the particular habitat. Transients (i.e., birds flying over or through the habitat without stopping) are indicated by "T".

Habitat 1. Lake (Open or Surface Water); stops 12 and 19.

Dominant Species (3)	Other Species (8)
Black-crowned Night-Heron	Great Blue Heron
Mallard	Great Egret
Common Grackle	Yellow-billed Cuckoo (T)
	Barn Swallow
	American Crow (T)
	Black-capped Chickadee (T)
	Red-winged Blackbird
	Blue Jay (T)

Habitat 2. Wetland; stops 4, 9, 13 and 16

Dominant Species (3)	Other Species (18)
Mallard	Great Blue Heron
Barn Swallow	Little Blue Heron
Red-winged Blackbird	Cattle Egret
	Black-crowned Night-Heron
	Yellow-crowned Night-Heron
	Red-tailed Hawk
	Killdeer
	Spotted Sandpiper
	American Woodcock
	Gull sp.
	Empidonax sp.
	Bank Swallow
	Black-capped Chickadee
	European Starling
	Common Yellowthroat
	Common Grackle
	Northern Cardinal
	American Goldfinch (T)

Table 4 (continued)

Habitat 3. Cropland; stops 6, 14 and 17.

Dominant Species (4)	Other Species (13)
Killdeer	Cattle Egret
Barn Swallow	Great Egret (T)
Red-winged Blackbird	Mallard
Common Grackle	Northern Bobwhite
	Mourning Dove
	Chimney Swift
	Horned Lark
	Bank Swallow
	American Crow
	European Starling
	Eastern Meadowlark
	Northern Cardinal
	Indigo Bunting

Habitat 4. Early Successional Fields; stops 1 and 2.

Dominant Species (5)	Other Species (21)
Northern Bobwhite	Mallard (T)
Red-winged Blackbird	Blue-winged Teal (T)
Indigo Bunting	Killdeer
American Goldfinch	Mourning Dove
Field Sparrow	Yellow-billed Cuckoo
	Chimney Swift
	Empidonax sp.
	Horned Lark
	Bank Swallow
	Barn Swallow
	Purple Martin
	American Crow
	Black-capped Chickadee
	Brown Thrasher
	European Starling
	Common Yellowthroat
	Yellow-breasted Chat
	Common Grackle
	Brown-headed Cowbird
	Northern Cardinal
	Dickcissel

Table 4 (continued)

Habitat 5. Late Successional Fields; stops 8, 15, 18, 20 and 21.

Dominant Species (6)	Other Species (26)
Northern Bobwhite	Great Blue Heron
Red-winged Blackbird	Green-backed Heron
Common Grackle	Little Blue Heron (T)
Northern Cardinal	Cattle Egret (T)
Indigo Bunting	Black-crowned Night-Heron (T)
American Goldfinch	Mallard (T)
	Mourning Dove
	Yellow-billed Cuckoo
	Chinmey Swift
	Ruby-throated Hummingbird
	Downy Woodpecker
	Barn Swallow
	Blue Jay
	Black-capped Chickadee
	Carolina Wren
	Gray Catbird
	Brown Thrasher
	American Robin
	European Starling
	White-eyed Vireo
	Bell's Vireo
	Warbling Vireo
	Yellow Warbler
	Common Yellowthroat
	Yellow-breasted Chat
	Field Sparrow

Habitat 6. Floodplain Forest; stops 3, 7 and 10.

Dominant Species (7)	Other Species (15)
Black-capped Chickadee	Northern Bobwhite
Tufted Titmouse	Mourning Dove
American Robin	Yellow-billed Cuckoo
Red-eyed Vireo	Chimney Swift
Common Grackle	Northern Flicker
Northern Cardinal	Red-bellied Woodpecker
Indigo Bunting	Downy Woodpecker
	Eastern Wood-Pewee
	Gray Catbird
	Brown Thrasher
	Blue-gray Gnatcatcher
	Warbling Vireo
	Red-winged Blackbird
	Northern Oriole
	Blue Jay

Table 4 (continued)

Habitat 7. Developed Land; stops 5 and 11.

Dominant Species (7)	Other Species (20)
Northern Bobwhite	Cattle Egret (T)
Eastern Wood-Pewee	Mallard (T)
American Robin	Killdeer
European Starling	Rock Dove (T)
Red-winged Blackbird	Mourning Dove
Common Grackle	Yellow-billed Cuckoo
Dickcissel	Chimney Swift
	Eastern Kingbird
	Barn Swallow
	Blue Jay
	Tufted Titmouse
	Red-eyed Vireo
	Warbling Vireo
	House Sparrow
	Eurasian Tree Sparrow
	Eastern Meadowlark
	Brown-headed Cowbird
	Northern Cardinal
	Indigo Bunting
	Song Sparrow

Species Accounts

The following are brief accounts of the occurrence, abundance, distribution, and habitat association of each species. The first sentence of each summary is a general description of abundance and habitat association from Bohlen (1978) for the southern region of Illinois.

Bohlen divided numerical status into seven categories:

> Abundant - occurs in great numbers at the right season and habitat; many can be seen in one day. Usually applied to birds with large populations that occur in dominant habitats or several different habitats. (Red-winged Blackbird)
>
> Common - occurs in considerable numbers at the right season and habitat; several can be seen in one day. (Red-headed Woodpecker)
>
> Fairly Common - occurs in numbers but to a lesser degree than common; if looked for, one or two can be seen in a day at the right season and habitat. (Greater Yellowlegs)
>
> Uncommon - occurs in small numbers and may be limited by habitat; even if looked for at the right season and habitat, might be missed in a day. (King Rail)
>
> Occasional - occurs a few times a year; hard to find, probably limited by habitat or season. (White-fronted Goose)
>
> Rare - occurs once or twice a year, some years not at all, probably on the edge of its range or in small local populations; could apply to some regular vagrants. (Piping Plover)
>
> Very Rare - occurs only a few times ever in the state; usually applies to a vagrant. (Townsend's Solitaire)

Also included are: number of stops where a species was encountered; a list of those stops; endangered species status (Sheviak and Thom, 1981); and pertinent comments. Total encounters (Table 2) is the number of encounters (i.e., one bird heard or seen was one encounter) of a species as a percent of all bird encounters during census of stops and transect legs. Encounters recorded during qualitative searches were not included in the calculations. For additional information on abundance see distribution maps.

Great Blue Heron (*Ardea herodias*)

Locally common summer resident near lakes and rivers. Encountered at three stops; 4, 18 and 19. Only single individuals observed, probably wanderers. Total encounters = 0.12%.

Green-backed Heron (*Butorides striatus*)

Common summer resident of creeks and ponds. Encountered at two stops; 18 and 21. Usually seen flying over habitats. Total encounters = 0.22%.

Little Blue Heron (*Egretta caerulea*)

Common summer resident around shallow pools and sloughs. State endangered. Encountered at three stops; 4, 9 and 18. Most often seen foraging in wetland areas, especially along southern edge of Peninsual. Total encounters = 0.60%.

Cattle Egret (*Bubulcus ibis*)

Uncommon local summer resident of wet areas and pastures. Encountered at five stops; 1, 6, 9, 11 and 13. Often seen in agricultural fields, especially during plowing; as many as 60 birds seen following tractors during mid-May. Colony of some 217 nests just outside park boundaries (V. Kleen, pers. comm., 1983). Total encounters = 0.65%.

Great Egret (*Casmerodius albus*)

Common summer resident along lakes, rivers, and sloughs of the Illinois and Mississippi rivers and where nesting colonies are present. State endangered. Encountered at two stops; 12 and 17. Most (as many as ten together) were observed in wetlands just east of census stop 17. Two nests were found with Cattle Egret colony in area adjoining Horseshoe Lake outside park boundaries (V. Kleen, pers. comm., 1983). Total encounters = 0.47%.

Snowy Egret (*Egretta thula*)

Rare local summer resident near ponds and sloughs. State endangered. Not recorded at census stops. Only observed at a single location; one to two individuals seen on three occasions in wetland south of railroad tracks southeast of stop 17. Total encounters = 0.10%.

Black-crowned Night-Heron (*Nycticorax nycticorax*)

Uncommon summer resident of swampy areas. State endangered. Encountered at seven stops; 4, 9, 12, 13, 15, 16 and 19. Seen along shore and on available perches of lake, and in wetland habitats throughout site. Three nests reported with Cattle Egret colony outside site boundaries (V. Kleen, pers. comm., 1983). Total encounters = 1.42%.

Yellow-crowned Night-Heron (*Nycticorax violaceus*)

Fairly common summer resident of swampy areas. Encountered at one stop; 9 (wetland). Total encounters = 0.02%.

Mallard (*Anas platyrhynchos*)

Uncommon summer resident along major river systems, lakes, ponds, and grain fields. Encountered at twelve stops; 1, 4, 6, 9, 11-15, 17, 19 and 20. The 6th most encountered species. Six or seven different broods of young were observed, one in flooded woods near stop 13 (22 May), two south of railroad tracks near stop 17, one at stop 13, one between stops 14 and 15, one at stop 9, and one on Lake off Peninsula point. Favored lake and marsh habitats, but also found in agricultural fields. Total encounters = 3.47%.

Blue-winged Teal (*Anas discors*)

Occasional summer resident of shallow ponds, sloughs, and overflow areas. One flew over stop 2. Regularly seen in marsh areas east and southeast of stop 17; maximum count was five on 30 May. No young noted. Total encounters = 0.30%.

Wood Duck (*Aix sponsa*)

Common summer resident along wooded creeks and ponds. Pair flew over one stop; 8. Pair seen in grove of large cottonwoods near stop 12; possibly nesting in natural tree cavity. No broods recorded. Total encounters = 0.12%.

Red-tailed Hawk (*Buteo jamaicensis*)

Fairly common summer resident of semiopen areas and woodlots. Encountered at one stop; 16. Adult seen perched in willow at stop 16. Occasionally seen soaring over fields along southern edge of Peninsula. Juvenile observed soaring over southern part of Walker's Island on 22 May. Total encounters = 0.05%.

American Kestrel (*Falco sparverius*)

Common permanent resident of open areas. Twice observed pair associated with grove of large cottonwoods near stop 12. Individuals occasionally seen perched on wire near stop 17 and along Hwy 111. Also noted along Lake edge. Total encounters = 0.15%.

Northern Bobwhite (*Colinus virginianus*)

Common permanent resident of open woodland, edge of woods, hedges, and cultivated areas. Encountered at eleven stops; 1-3, 5, 11, 14, 15, 17, 18, 20 and 21. Heard during every trip; the 7th most encountered species. Preferred habitat included cropland, successional fields, and forest edge. Total encounters = 2.94%.

Killdeer (*Charadrius vociferus*)

Common summer resident of wet areas in fields and pastures and on mudflats. Encountered at seven stops; 1, 6, 11, 13, 14, 16 and 17. Favored agricultural fields with low vegetation and bare ground. Total encounters = 1.52%.

American Woodcock (*Scolopax minor*)

Uncommon summer resident of damp woods. Encountered along wooded edge of marsh, stop 13. Three additional records, one bird flushed in wet old field between stops 1 and 2, one flushed in wooded area of transect leg 4-5, and one flushed in damp woods northwest of stop 13. Total encounters = 0.07%.

Spotted Sandpiper (*Actitis macularia*)

Rare summer resident along creeks, ponds, and beaches. On 1 June, 21 were observed foraging on exposed mudflat at stop 4. Four birds were recorded in same area on 31 May during qualitative census. No other records; probably migrant. Total encounters = 0.52%.

Gull sp. (*Larus argentatus* or *L. delawarensis*)

Herring Gull is a rare nonbreeder of large bodies of water; Ring-billed Gull is an occasional nonbreeding summer resident that occurs wherever there is a large expanse of water. Between 25 May and 4 June, 4 to 10 gulls seen along far mudflat near stop 4; probably migrants or wanderers. Total encounters = 0.47%.

Common Tern (*Sterna hirundo*)

Not known to be a summer resident, but is a fairly common migrant that prefers lakes and large rivers. State endangered. One record, a bird seen in low direct flight over pond at north end of Peninsula on 28 May during qualitative survey; probably a migrant. Total encounters = 0%.

Rock Dove (*Columba livia*)

Abundant permanent resident of both town and country. Small flocks observed flying near stop 11. No record of species stopping over. Large numbers are known to inhabit building exteriors of Granite City Steel Company; likely that birds occasionally visit study area. Total encounters = 0.27%.

Mourning Dove (*Zenaida macroura*)

Abundant summer resident of open country; closely associated with agriculture. Encountered at six stops; 1, 7, 11, 17, 18 and 21. Common, especially on Peninsula. Prefers successional fields, cropland, and forest edge. Total encounters = 1.12%.

Yellow-billed Cuckoo (*Coccyzuz americanus*)

Common summer resident of woodland, woodland edge, and orchards. Encountered at eight stops; 2, 5, 7, 9, 13, 15, 20 and 21. Prefers forests, forest edge, and successional fields with some mature trees. Total encounters = 0.93%.

Common Screech Owl (*Otus asio*)

Common permanent resident of woodland; also found in residential areas. Not recorded; however, Peninsula resident reported a pair using artificial nest boxes near his home successfully raising young over last several years, including 1983 (W. Nichols, pers. comm., 1983). Total encounters = 0%.

Great Horned Owl (*Bubo virginianus*)

Fairly common permanent resident of woodland; can be found hunting in open places. Not recorded during census of stops. Species only recorded on Walker's Island: individual, a pair on a later date, seen perched in wood edge along wheat field between stops 3 and 4 in early June; one bird observed near stop 5 on 24 May. Total encounters = 0.07%.

Common Nighthawk (*Chordeiles minor*)

Common summer resident of residential areas. Not recorded at stops; however, two sightings of birds hawking along overflow/drainage channel near stop 7. Qualitative records: bird(s) hawking over Lake along north edge of Peninsula in early morning and late evening on 28 (9 birds) and 29 (1 bird) May, respectively. Species also seen resting on low branches of riparian willows near stop 7. Total encounters = 0.07%.

Chimney Swift (*Chaetura pelagica*)

Common summer resident of residential areas; also can be found in swamps. Encountered at eight stops; 2, 5, 6, 10, 15, 18, 20 and 21. Seen hawking throughout site over all habitat types. Total encounters = 1.30%.

Ruby-throated Hummingbird (*Archilochus colubris*)

Fairly common summer resident of woods edge, weedy areas, and gardens. One observed in successional field at stop 21. Two records of single birds between stops 14 and 15. Female seen on Walker's Island during qualitative survey on 5 July. Seemed to prefer successional fields and forest edge. Total encounters = 0.07%.

Belted Kingfisher (*Ceryle alcyon*)

Uncommon summer resident found near ponds, lakes, and rivers. Not recorded at stops. Individual birds observed on occasion along transect legs and during qualitative surveys, usually along Lake edge. Total encounters = 0.07%.

Northern Flicker (*Colaptes auratus*)

Common summer resident of both open areas and woodland. Encountered at one stop; 3. Recorded along eight transect legs. Favored forest, forest edge, and open areas with some mature trees. Total encounters = 0.30%.

Red-bellied Woodpecker (*Melanerpes carolinus*)

Common permanent resident of woodlands. Encountered at one stop; 7. Most records of this species were between census stops. Total encounters = 0.30%.

Red-headed Woodpecker (*Melanerpes erythrocephalus*)

Common summer resident of woodlands with standing dead trees. Not recorded at census stops. Only two records, one bird between stops 1 and 2, and an individual between stops 17 and 18. Small acreage of forest land probably accounts for low numbers. Total encounters = 0.07%.

Downy Woodpecker (*Picoides pubescens*)

Common permanent resident of forest; visits open areas. Encountered at four stops; 10, 15, 18 and 20. Most commonly recorded woodpecker. Usually observed in forest and in trees of Lake border and late successional fields. Total encounters = 0.45%.

Eastern Kingbird (*Tyrannus tyrannus*)

Common summer resident of open and semiopen areas. Encountered at one stop; 11. Seemed to favor early successional fields, especially near open water. Total encounters = 0.27%.

Great Crested Flycatcher (*Myiarchus crinitus*)

Common summer resident of forest. Not recorded at census stops. Several records along wooded areas. Total encounters = 0.10%.

Eastern Phoebe (*Sayornis phoebe*)

Uncommon summer resident along streams and forest edge. Not recorded during survey period. One bird seen in wooded area of stop 5 on 22 May during site reconnaissance. Tentative identification of bird seen between stops 2 and 3 on 24 May. Total encounters = 0%.

Willow Flycatcher (*Empidonax traillii*)

Rare summer resident of willow thickets and scrub areas. Nonsinging *Empidonax* sp., possibly *traillii*, encountered at two stops; 2 and 13. All *Empidonax* sp. heard were of this species. Most encounters occurred during late May and early June along second growth near Lake and marshes. It may be that some nonsinging birds were the Acadian Flycatcher (*E. virescens*), a common summer resident that inhabits river bottom forests. Total encounters = 0.10% (singing) and 0.07% (nonsinging) = 0.17%.

Eastern Wood-Pewee (*Contopus virens*)

Common summer resident of woodlands. Encountered at two stops; 5 and 7. Favored forest, more common in tracts that were relatively extensive and mature. Total encounters = 0.35%.

Horned Lark (*Eremophila alpestris*)

Common permanent resident associated with agricultural land. Encountered at two stops; 1 and 17. Preferred cropland with a combination of low vegetation and bare ground. Total encounters = 0.32%.

Bank Swallow (*Riparia riparia*)

Local common summer resident near sand pits and road cuts. Encountered hawking over three stops; 1, 6 and 13. During qualitative survey on 7 July, I counted some 100 nest holes along upper third of a steep 10 foot high sandy bank on northeast shore of Walker's Island; only two birds, both hawking, were seen. Species was most common over open areas of Island during early part of census, probably ranging farther from nesting area with time. Total encounters = 1.07%.

Barn Swallow (*Hirundo rustica*)

Abundant summer resident near farms, meadows, and water. Encountered hawking over fourteen stops; 1, 2, 4, 6, 8, 9, 11-17 and 20. Pair nesting in duck blind at stop 4 (marsh). This swallow was the 9th most encountered species. Common over openland and water. Total encounters = 2.52%.

Purple Martin (*Progne subis*)

Common summer resident of residential areas. Individual seen hawking over stop 1. A few additional records of birds over Lake shore and successional fields. Total encounters = 0.07%.

Blue Jay (*Cyanocitta cristata*)

Common permanent resident of woodlands that also occurs in residential areas. Encountered at five stops; 5, 7, 12, 19 and 20. Favored forested areas. Total encounters = 0.67%.

American Crow (*Corvus brachyrhynchos*)

Common permanent resident of open and semiopen areas. Encountered at three stops; 2, 6 and 19. Occasionally heard calling from forested areas or seen foraging on ground in agricultural fields. Total encounters = 0.70%.

Black-capped Chickadee (*Parus atricapillus*)

Common permanent resident in upper part of south primarily of woodlands. Encountered at ten stops; 2, 3, 7-10, 13, 15, 18 and 21. Found in a variety of areas where trees were available, including forest, forest edge and successional fields. Total encounters = 1.55%.

Tufted Titmouse (*Parus bicolor*)

Common permanent resident of woodlands. Encountered at three stops; 3, 5 and 7. Favored forest habitat. Total encounters = 0.47%.

House Wren (*Troglodytes aedon*)

Common summer resident of woodland and residential areas. Not recorded at census stops. Recorded from three transect legs, with most encounters in forest, strips along leg 2-3. Total encounters = 0.25%.

Carolina Wren (*Thryothorus ludovicianus*)

Common permanent resident primarily of woodlands. Encountered at one stop; 15. Also reported on legs between stops 7-8 and stops 8-9, and during qualitative survey south of Hwy 111. Preferred forest, forest edge, and successional fields with some mature trees. Total encounters = 0.20%.

Northern Mockingbird (*Mimus polyglottos*)

Common permanent resident usually of multiflora rose hedges and around farmyards. Several records: one to two birds regularly encountered in successional field and agricultural field between stops 15 and 16; two records along north shore of Lake during qualitative surveys. Total encounters = 0.15%.

Gray Catbird (*Dumetella carolinensis*)

Common summer resident of forest edge (low in the brush). Encountered at three stops; 10, 20 and 21. Total encounters = 0.20%.

Brown Thrasher (*Toxostoma rufum*)

Common summer resident of brush areas. Encountered at four stops; 2, 3, 18 and 21. Preferred forest edge and successional fields. I often saw these birds retreating into riparian woods to escape my car while driving along main road of Peninsula. Total encounters = 0.50%.

American Robin (*Turdus migratorius*)

Abundant summer resident of residential areas and woodland. Encountered at seven stops; 3, 5, 7, 10, 11, 15 and 21. This bird was the 8th most encountered species. Found in all terrestrial habitat types. Total encounters = 2.60%.

Eastern Bluebird (*Sialia sialis*)

Common summer resident of orchards and open woodlots. Not recorded during survey period. One bird seen in wooded area of stop 5 on 22 May; probably migrant. To date, artificial nest box program of past few years on Walker's Island has been unsuccessful. (L. Wrischnik, pers. comm., 1983). Total encounters = 0%.

Blue-gray Gnatcatcher (*Polioptila caerulea*)

Common summer resident of woodland. Encountered in floodplain forest at stop 7. Only other records were in forested land of same general area. Total encounters = 0.20%.

Cedar Waxwing (*Bombycilla cedrorum*)

Uncommon summer resident of many woodland situations; often found in residential areas. Not recorded at census stops. Loose flocks of varying sizes observed along several transect legs and during qualitative surveys. Total encounters = 1.15%.

European Starling (*Sturnus vulgaris*)

Abundant permanent resident of both urban and rural habitats. Encountered at seven stops; 1, 5, 6, 8, 9, 11 and 18. Starlings were the 3rd most encountered species. Total encounters = 7.36%.

White-eyed Vireo (*Vireo griseus*)

Common summer resident preferring woods edge and thickets. Encountered at one stop; 20. Also recorded along three transect legs. Favored successional field habitat and riparian second growth. Total encounters = 0.12%.

Bell's Vireo (*Vireo bellii*)

Uncommon summer resident of thickets and hedgerows. Encountered at stop 21 (successional field) on two occasions. Only additional records: a bird encountered on 22 May during site reconnaissance between stops 15 and 16 along early growth Lake riparia; and one heard on 15 June on north shore of Lake near railroad tracks. Total encounters = 0.05%.

Red-eyed Vireo (*Vireo olivaceus*)

Common summer resident of woodland or wherever fairly large trees are available. Encountered at three stops; 3, 5 and 7. Fairly common in wooded areas. Total encounters = 0.82%.

Warbling Vireo (*Vireo gilvus*)

Common summer resident of open woods, usually along streams and beside ponds and lakes. Encountered at four stops; 10, 11, 15 and 21. The most commonly recorded vireo. Total encounters = 1.85%.

Yellow Warbler (*Dendroica petechia*)

Fairly common summer resident associated with willows along streams and lakes. Encountered at two stops; 15 and 21. Also recorded along two transect legs and on north shore of Lake. Favored forest edge or successional fields with some mature trees, usually near water. Total encounters = 0.15%.

Black-throated Green Warbler (*Dendroica virens*)

Nonresident but a common migrant found in conifers as well as decidous trees. One record, a male seen on 25 May in lower branches of forest edge along wheat field between stops 3 and 4 (Walker's Island); most likely a migrant. Total encounters = 0.02%.

Common Yellowthroat (*Geothlypis trichas*)

Common summer resident associated with low, wet areas with shrubby growth. Encountered at six stops; 1, 2, 4, 8, 15 and 18. Favored successional fields and marsh edges. Total encounters = 1.30%.

Yellow-breasted Chat (*Icteria virens*)

Common summer resident of shrubby upland areas. Encountered at three stops; 2, 15 and 18. Favored successional fields with fairly large perch trees or with forest border. Total encounters = 0.37%.

House Sparrow (*Passer domesticus*)

Abundant permanent resident near human habitation. Encountered at two stops; 5 and 11. Probably more common at site than survey numbers indicate. Abundant around existing homesites and other buildings. Total encounters = 0.97%.

Eurasian Tree Sparrow (*Passer montanus*)

Uncommon permanent resident in west-central part of state; prefers hedgerows and brush piles; does not inhabit urban areas to extent as does House Sparrow. Encountered at one stop; 11. Not unusual to find in association with House Sparrows (e.g., stop: 11; legs: 0-1, 10-11, and 20-21); no readily apparent indication of competitive exclusions between the two. Total encounters = 1.07%.

Eastern Meadowlark (*Sturnella magna*)

Common summer resident of fallow fields, farmland and along roadsides. Encountered at three stops; 6, 11 and 17. Total encounters = 0.47%.

Red-winged Blackbird (*Agelaius phoeniceus*)

Abundant summer resident of many habitats but favors swamps, marshes, roadside ditches, and clover fields. Encountered at nineteen stops; 1, 2, 4-6, 8-21. Most abundant and widely distributed species; found in all habitat types and observed every trip. Nearly three of every ten birds encountered was this species. May prefer marsh and cropland; however, it is also numerous in successional fields, along forest and lake edges, and combinations thereof. Total encounters = 29.45%.

Northern Oriole (*Icterus galbula*)

Common summer resident of woodland and trees along watercourses, ponds, and lakes. Encountered at one stop; 3. Seemed to prefer forest edge or other habitats where large trees were available. Total encounters = 0.22%.

Common Grackle (*Quiscalus quiscula*)

Abundant summer resident of almost all habitats. Encountered at nineteen stops; 1-8; 10-12; 14-21. It was the 2nd most encountered species. Similar to Red-winged Blackbird, this species was common to many habitat types; however, Common Grackles were more often associated with forests. Total encounters = 17.36%.

Brown-headed Cowbird (*Molothrus ater*)

Common summer resident of open areas that also occurs in woodlands. Encountered at three stops; 5, 8 and 15. Probably more common than survey numbers indicate. Seemed to favor forest edge. Total encounters = 0.70%.

Northern Cardinal (*Cardinalis cardinalis*)

Common permanent resident of residential areas and woodland. Encountered at twelve stops; 2, 3, 5-8, 10, 13, 15, 18, 20 and 21. The 4th most encountered species. Associated with a variety of habitat types, but seemed to prefer successional fields and forest edge. Total encounters = 4.64%.

Indigo Bunting (*Passerina cyanea*)

Abundant summer resident along roadsides and forest edge. Encountered at thirteen stops; 1-3, 5, 7, 8, 10, 11, 14, 15, 18, 20 and 21. The 5th most encountered species. Found in all terrestrial habitat types; however, seemed to favor successional fields and forest edge or combinations of the two. Total encounters = 3.49%.

Dickcissel (*Spiza americana*)

Abundant summer resident of open areas, especially clover fields and roadside bushes. Encountered at two stops; 1 and 11. Seemed to prefer early successional fields and cropland, especially wheat fields with some form of perches available. Total encounters = 0.30%.

American Goldfinch (*Carduelis tristis*)

Common summer resident of open country, woodland edge and shrub areas. Encountered at eight stops; 2, 8, 9, 11, 15, 18, 20 and 21. The 10th most encountered species. Found in a variety of habitat types, but more common in successional fields. Total encounters = 2.45%.

Rufous-sided Towhee (*Pipilo erythrophthalmus*)

Common summer resident of forest edge. Only record was a bird heard between stops 2 and 3 on 25 May, possibly a migrant. Total encounters = 0.02%.

Field Sparrow (*Spizella pusilla*)

Common summer resident of open brushy areas and along forest edge. Encountered at two stops; 2 and 8. Species was most common in successional fields of west Walker's Island. Reason for its absence on Peninsula may be explained by some requirement for early successional fields of relatively large size. Total encounters = 0.70%.

Song Sparrow (*Melospiza melodia*)

Fairly common summer resident of semiopen areas, especially along creeks, ditches, weed patches, and log piles. Encountered at one stop; 11. Seemed to prefer successional fields. Total encounters = 0.27%.

Species Distribution Maps

Following are distribution maps for each species encountered during the 1983 breeding bird survey. Each circle represents a census stop or a transect leg. Species recorded along transect legs are represented by a circle in the middle of the leg regardless of exact location of actual encounter(s). Size of symbol indicates the total number of birds, heard or seen, for all four visits at a stop or along a transect leg. Solid circle = species recorded on 4 of 4 censuses, 75% solid = recorded on 3 of 4 censuses, 50% solid = recorded on 2 of 4 censuses, and circle 25% solid = species recorded on 1 of 4 censuses (see maps).

Triangles represent encounters during qualitative surveys (refer to section on methods), these symbols do not indicate numbers of birds (usually) nor frequency of contacts. Unless otherwise indicated, qualitative records were within the survey period (25 May to 30 June). Additional information supplied are defined on map.

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77	Indigo Bunting
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79	Field Sparrow
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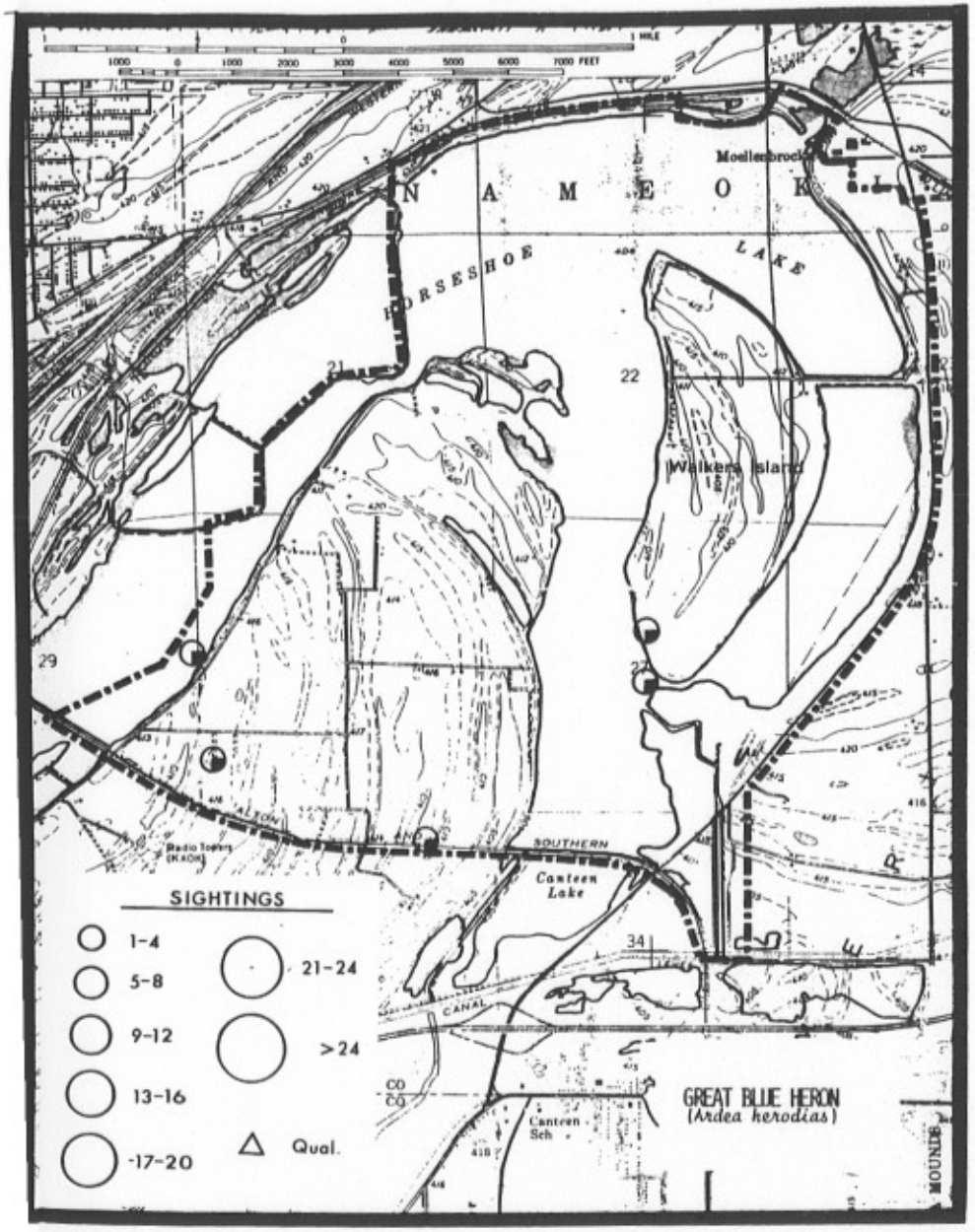
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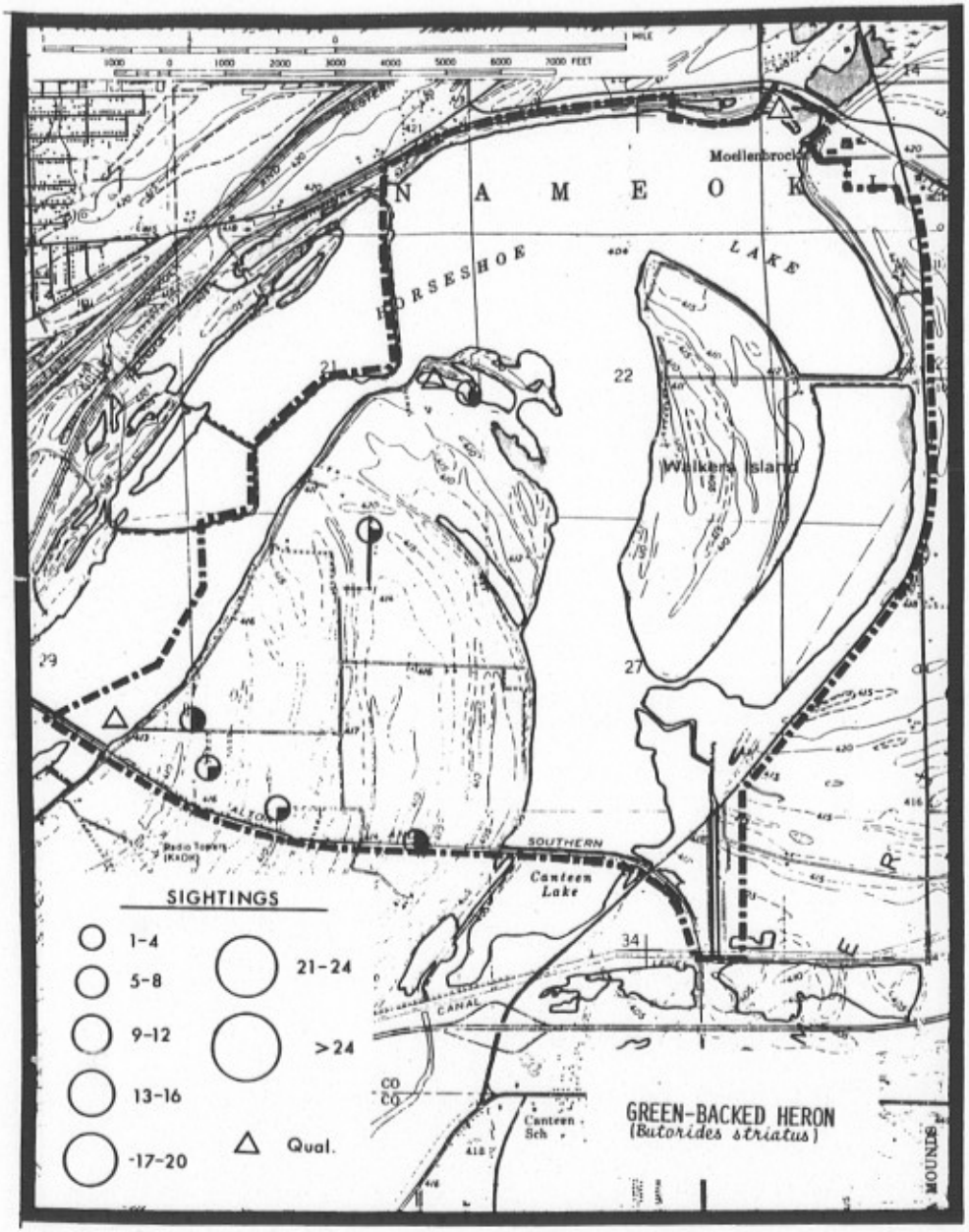
GREAT BLUE HERON
(Ardea herodias)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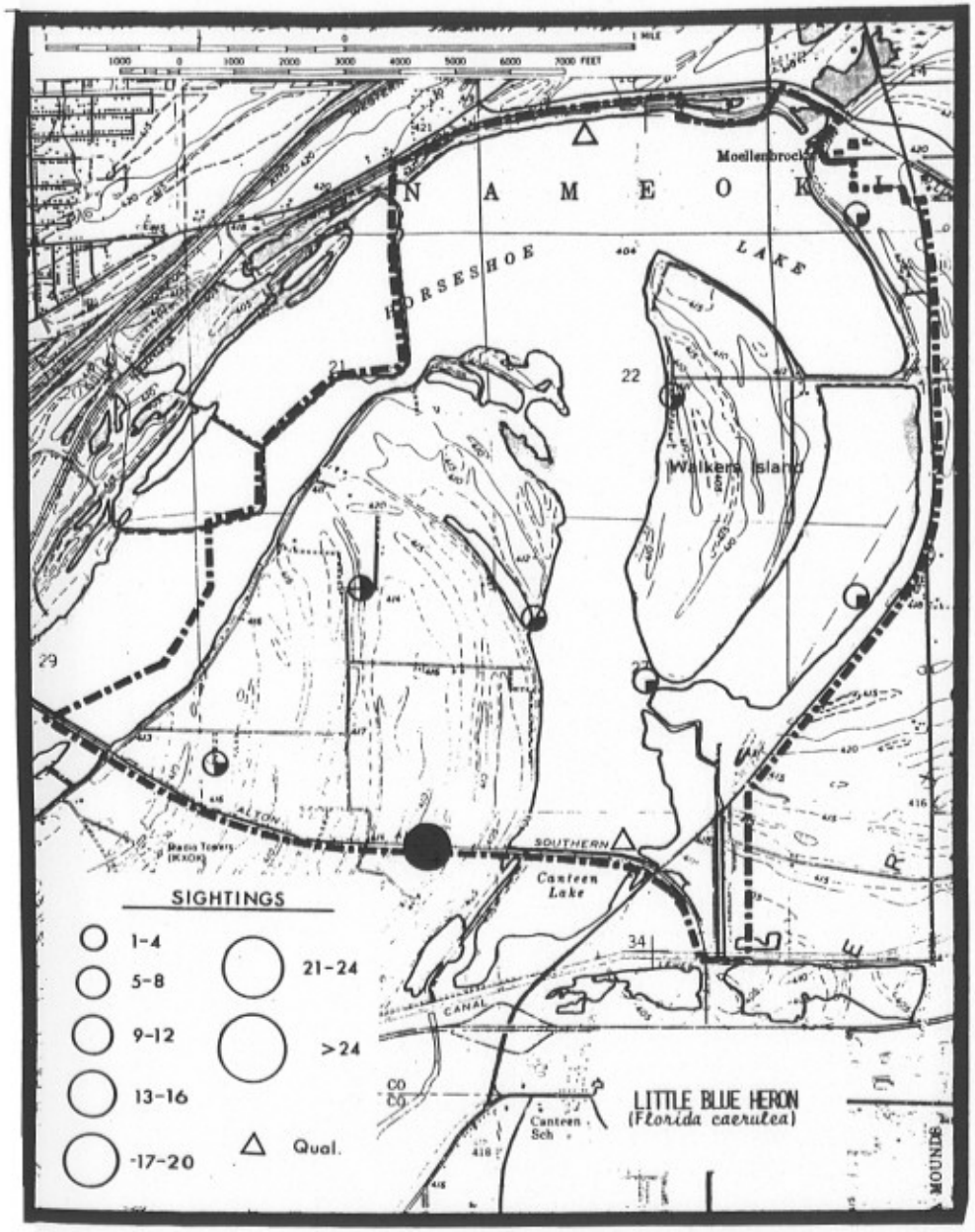
GREEN-BACKED HERON
(Butorides striatus)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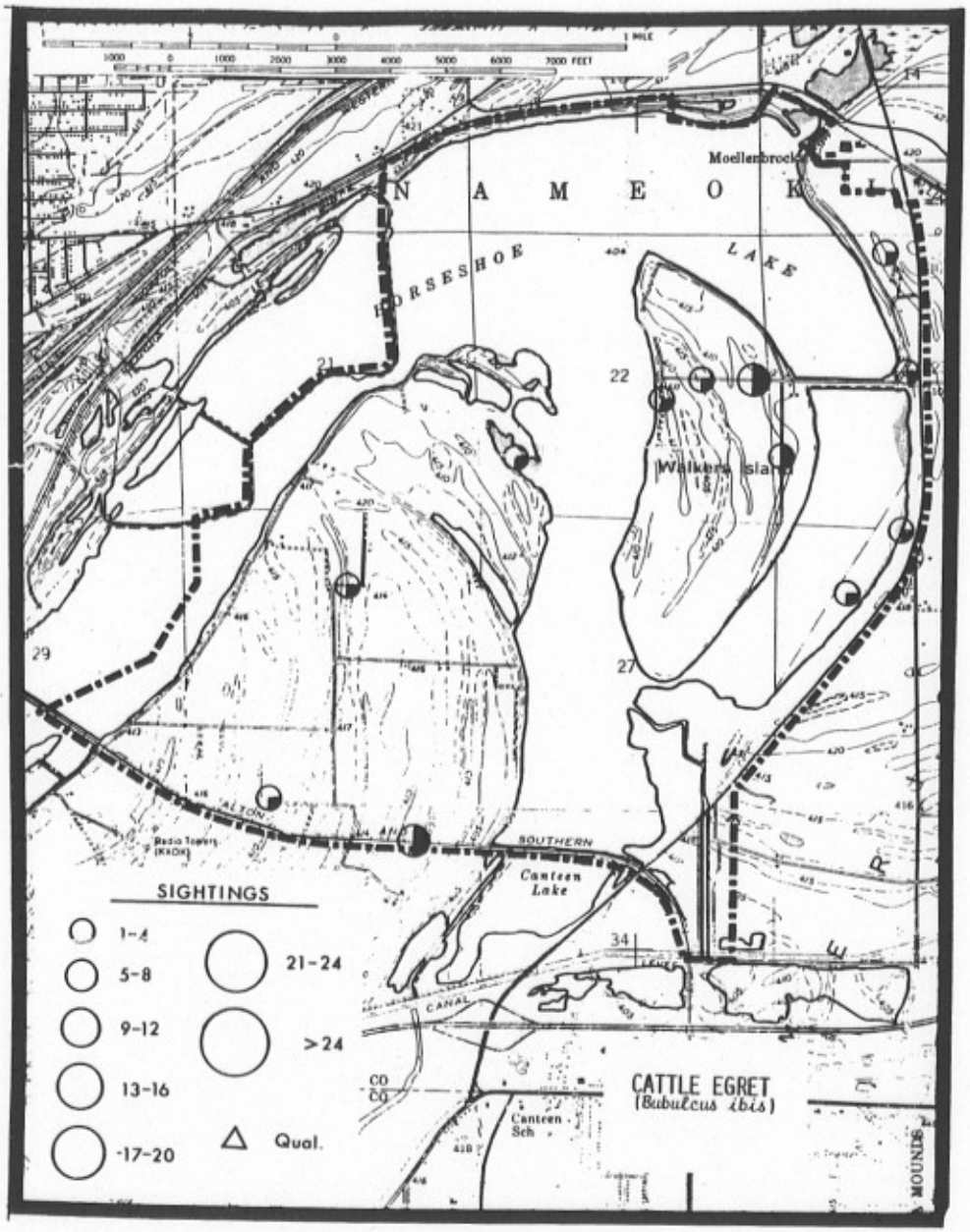
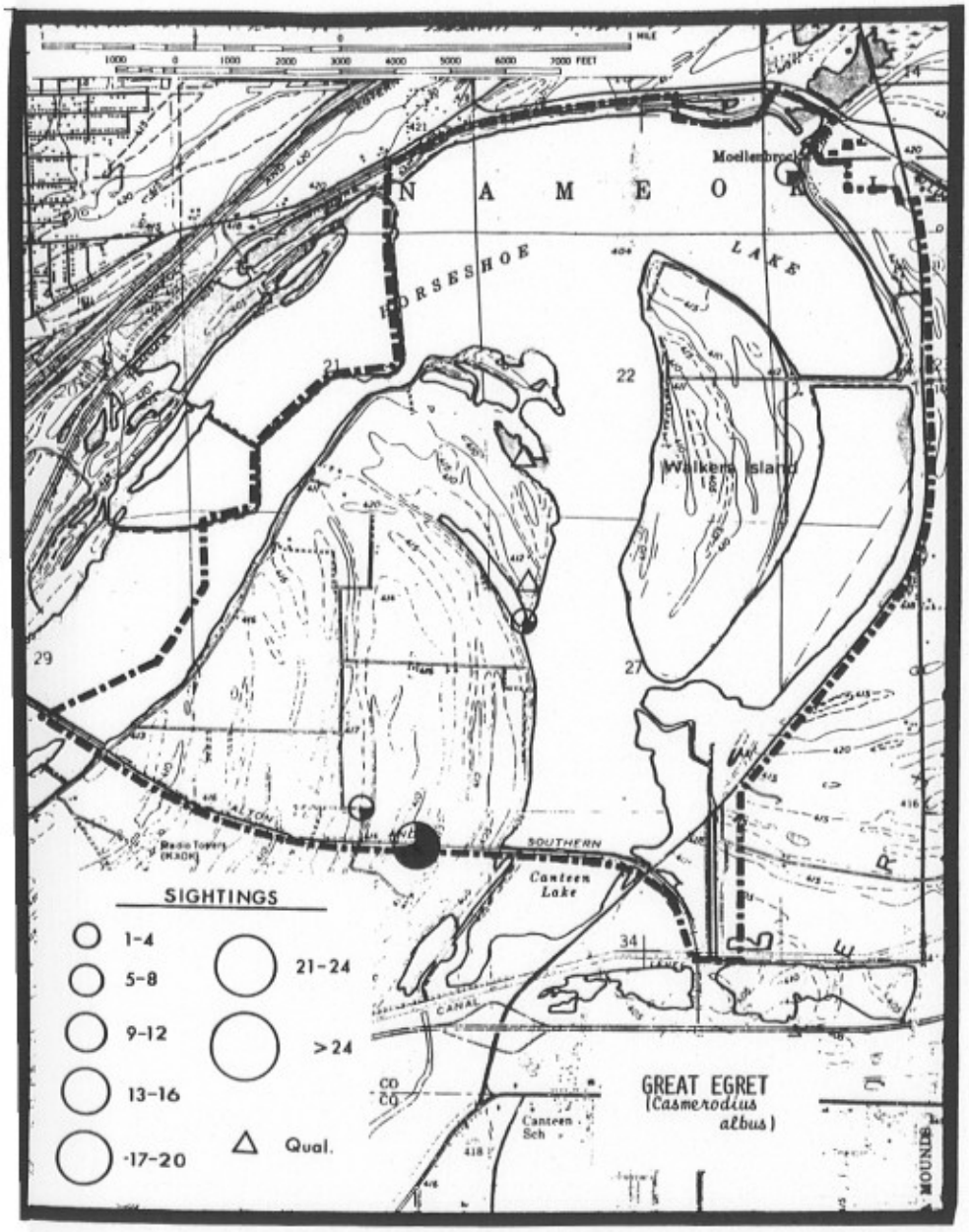
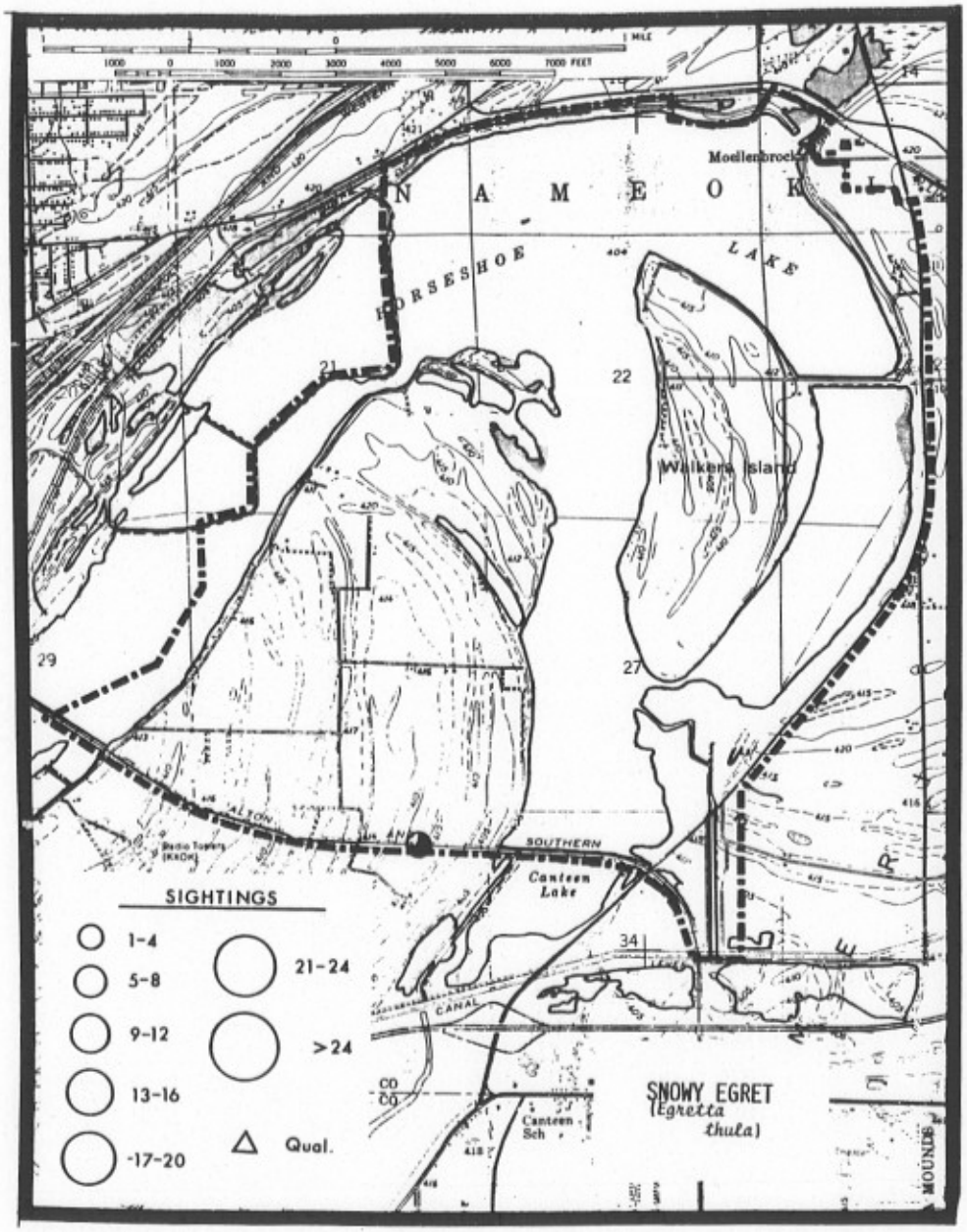
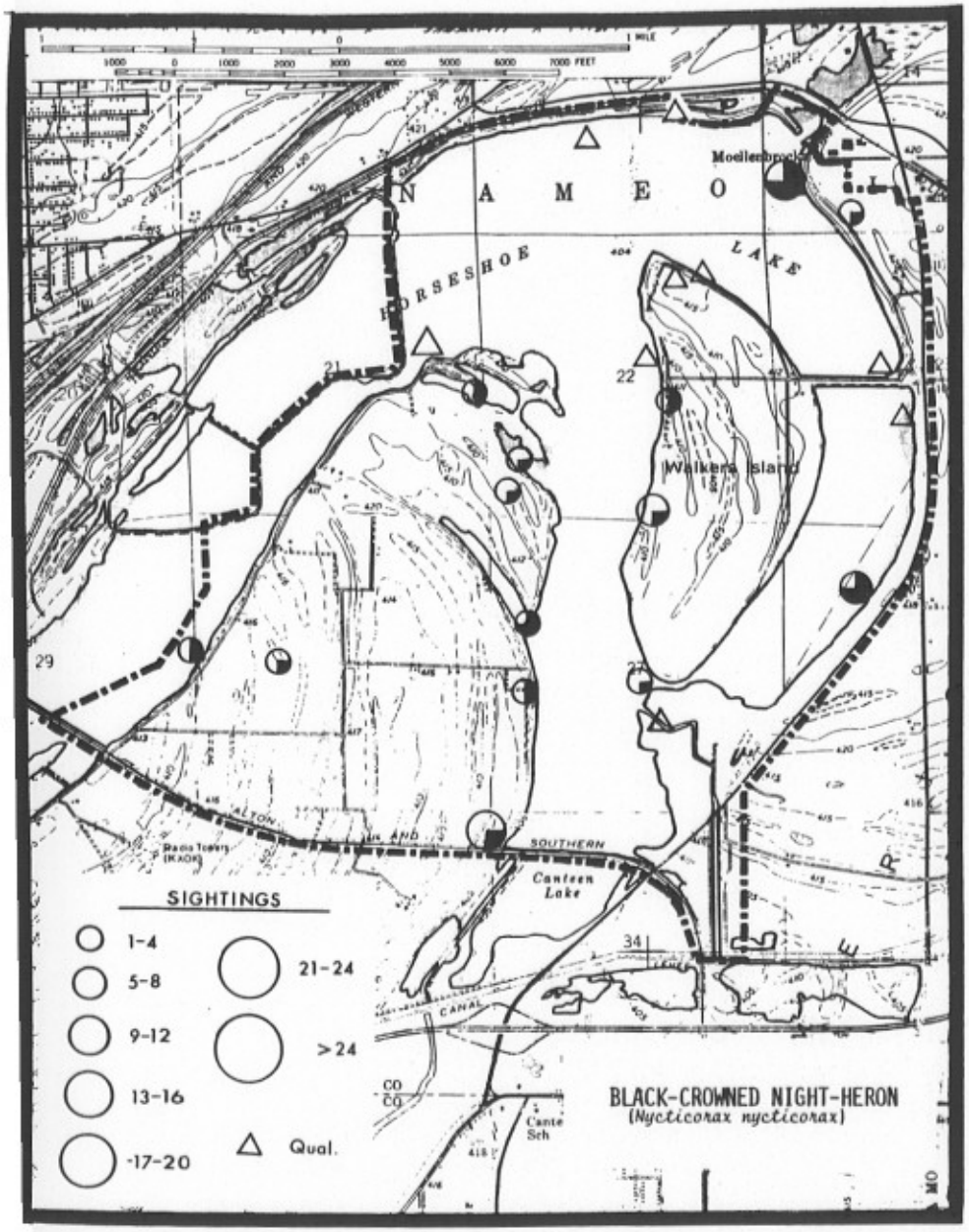
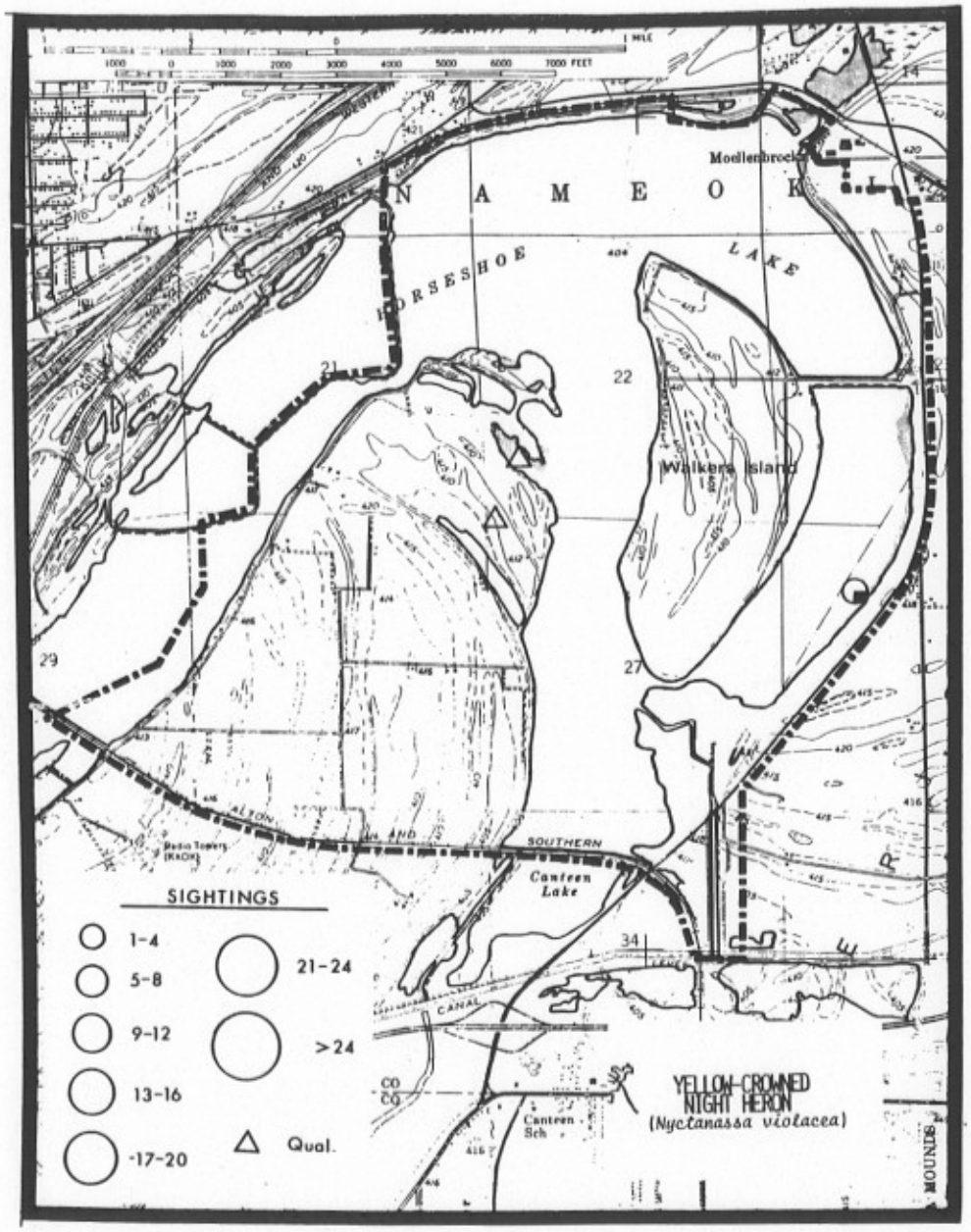
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
Moellenbrock
N A M E O K I
HORSESHOE LAKE
Walkers Island
ALTON
SOUTHERN
Radio Towers (KXOK)
Canteen Lake
CANAL
Canteen Sch
MOUNDS
SIGHTINGS
1-4
5-8
9-12
13-16
17-20
21-24
>24
Qual.
LITTLE BLUE HERON
(Florida caerulea)

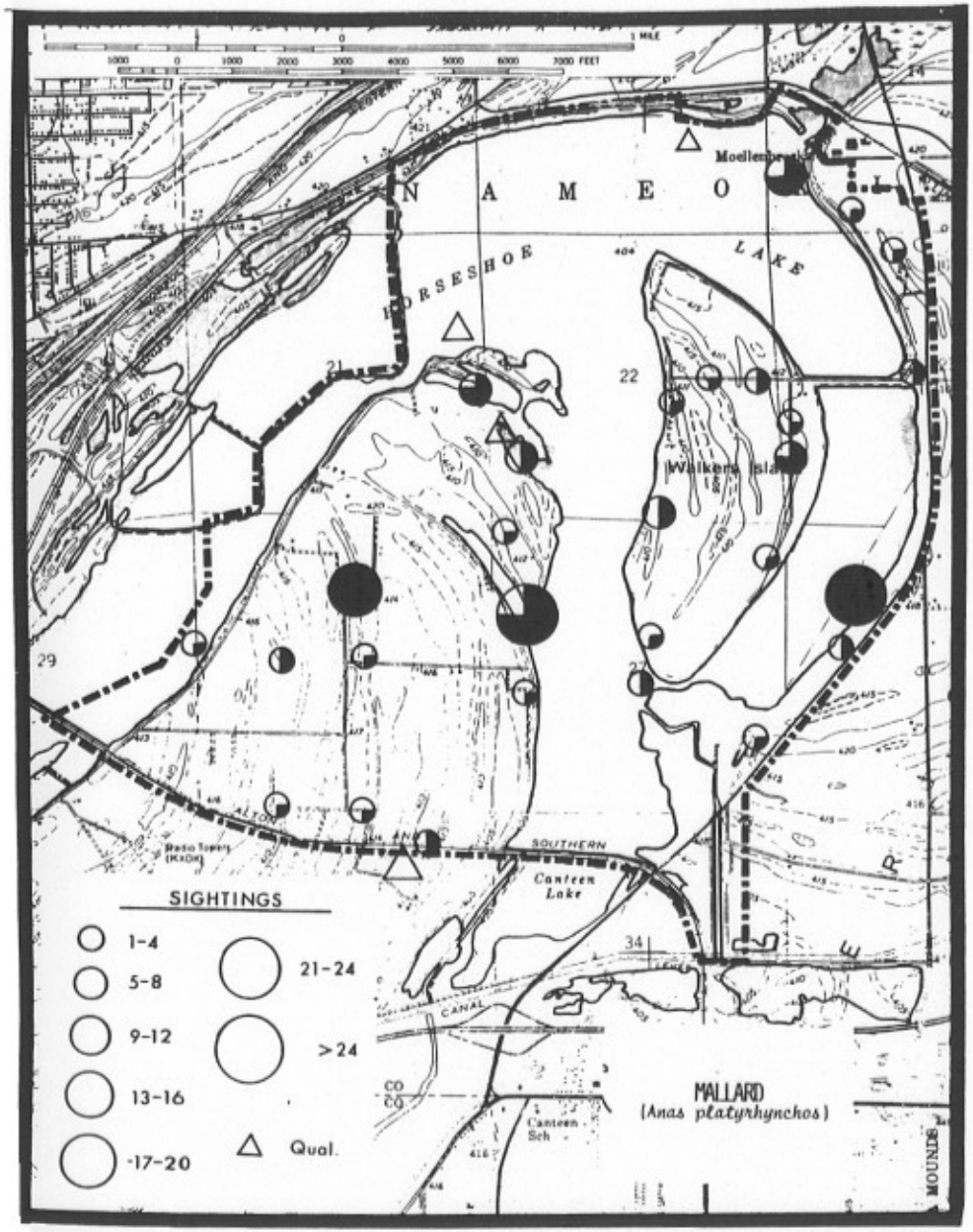

1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
Moellenbrock
N A M E O K I
HORSESHOE LAKE
Walkers Island
ALTON
SOUTHERN
Radio Towers (KXOK)
Canteen Lake
CANAL
Canteen Sch
MOUNDS
SIGHTINGS
1-4
5-8
9-12
13-16
17-20
21-24
>24
Qual.
CATTLE EGRET
(Bubulcus ibis)

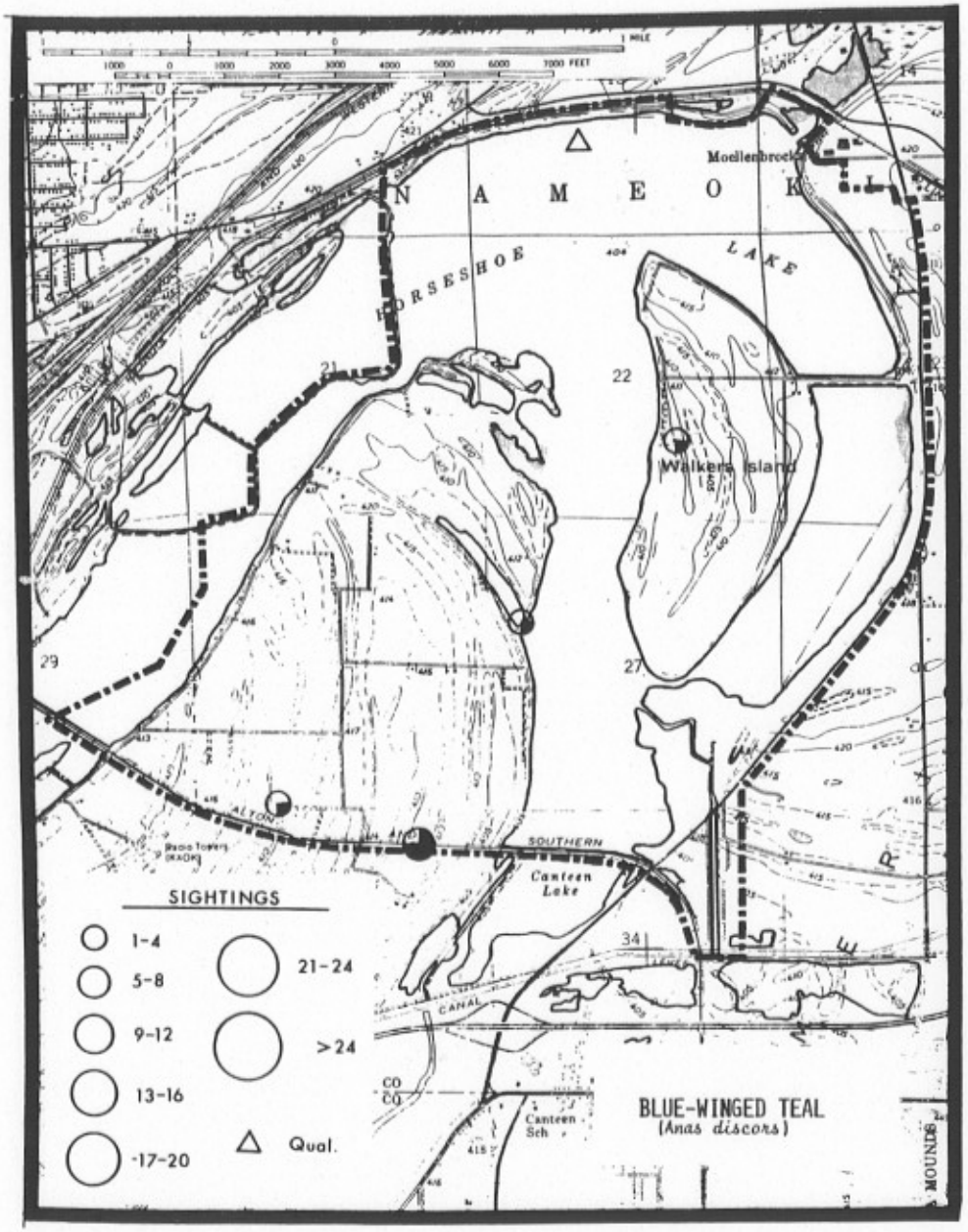

N A M E O K
HORSESHOE LAKE
Moellenbrock
Walkers Island
Canteen Lake
SOUTHERN
ALTON
CANAL
Canteen Sch
MOUNDS
SIGHTINGS
1-4
5-8
9-12
13-16
17-20
21-24
>24
Qual.
GREAT EGRET
(Casmerodius albus)

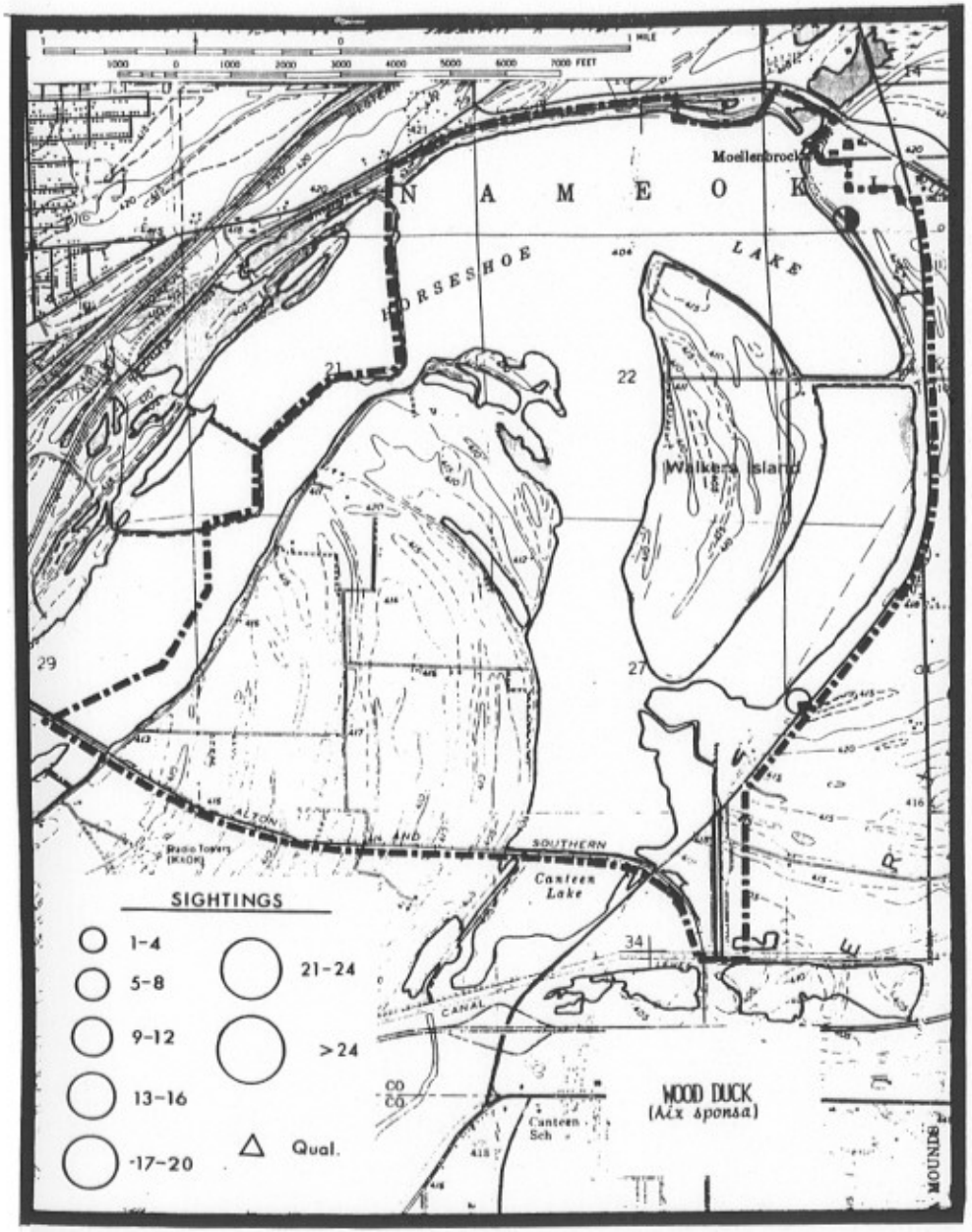

N A M E O K
HORSESHOE LAKE
Moellenbrock
Walkers Island
Canteen Lake
SOUTHERN
ALTON
CANAL
Canteen Sch
MOUNDS
SIGHTINGS
1-4
5-8
9-12
13-16
17-20
21-24
>24
Qual.
SNOWY EGRET
(Egretta thula)

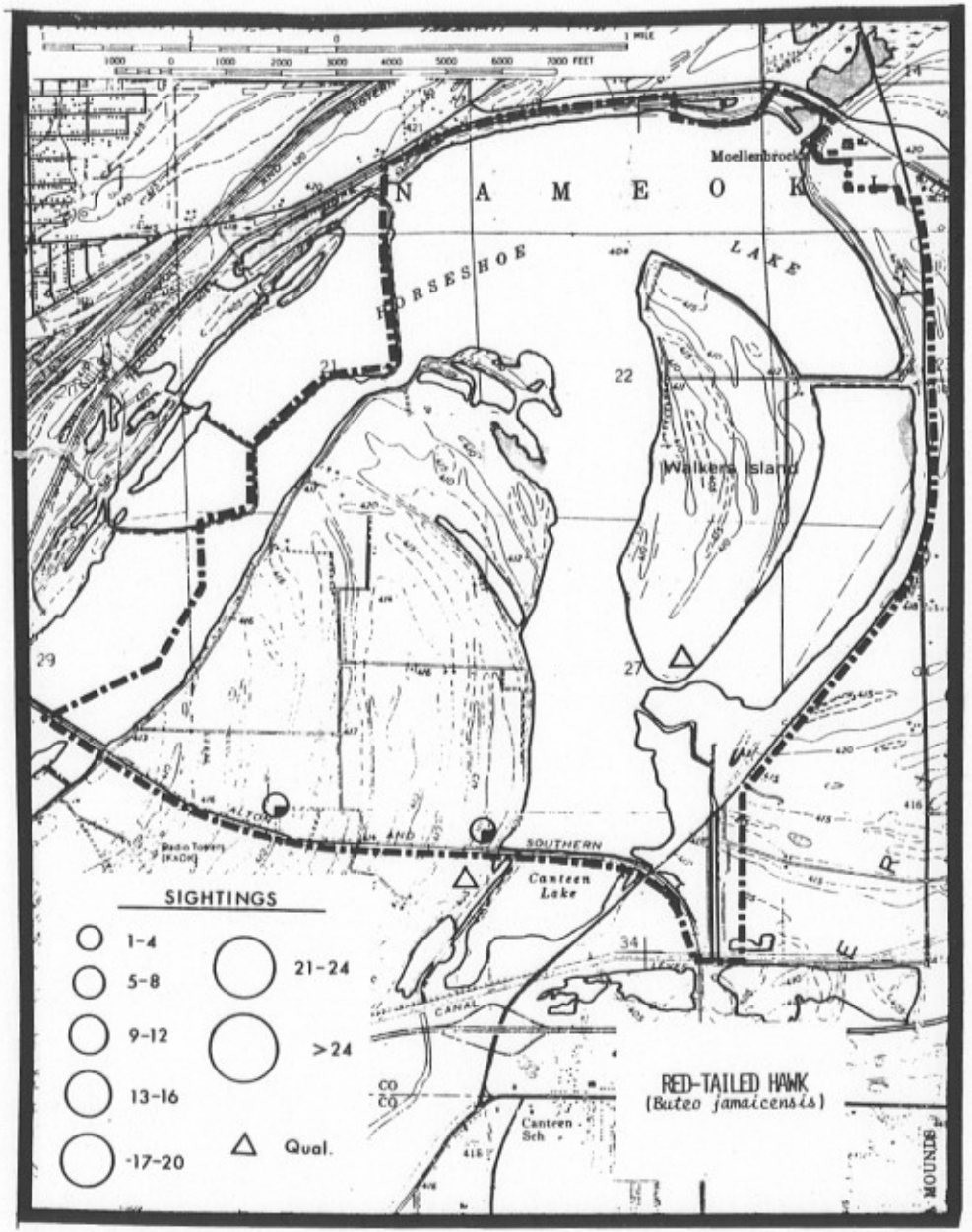

N A M E O K
HORSESHOE LAKE
Moellenbrock
Walkers Island
Canteen Lake
SOUTHERN
CANAL
Radio Towers (KAOK)
Canteen Sch
SIGHTINGS
1-4
5-8
9-12
13-16
17-20
21-24
>24
Qual.
BLACK-CROWNED NIGHT-HERON
(Nycticorax nycticorax)


N A M E O K
HORSESHOE LAKE
Moellenbrock
Walkers Island
Canteen Lake
SOUTHERN
CANAL
Radio Towers (KAOK)
Canteen Sch
SIGHTINGS
1-4
5-8
9-12
13-16
17-20
21-24
>24
Qual.
YELLOW-CROWNED NIGHT HERON
(Nyctanassa violacea)


N A M E O K
HORSESHOE LAKE
Moellenbrock
Walkers Island
Canteen Lake
SOUTHERN
ALTON
CANAL
Canteen Sch
Radio Towers (KXOK)
SIGHTINGS
1-4
5-8
9-12
13-16
17-20
21-24
>24
Qual.
MALLARD
(Anas platyrhynchos)


N A M E O K
HORSESHOE LAKE
Moellenbrock
Walkers Island
Canteen Lake
SOUTHERN
ALTON
CANAL
Canteen Sch
Radio Towers (KXOK)
SIGHTINGS
1-4
5-8
9-12
13-16
17-20
21-24
>24
Qual.
BLUE-WINGED TEAL
(Anas discors)


1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
Moellenbrock
N A M E O K
HORSESHOE LAKE
Walkers Island
21
22
29
27
34
ALTON AND SOUTHERN
Radio Towers (KAOK)
Canteen Lake
CANAL
CO
Canteen Sch
SIGHTINGS
1-4
5-8
9-12
13-16
17-20
21-24
>24
Qual.
WOOD DUCK
(Aix sponsa)
BONDUR


1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
Moellenbrock
N A M E O K
HORSESHOE LAKE
Walkers Island
21
22
29
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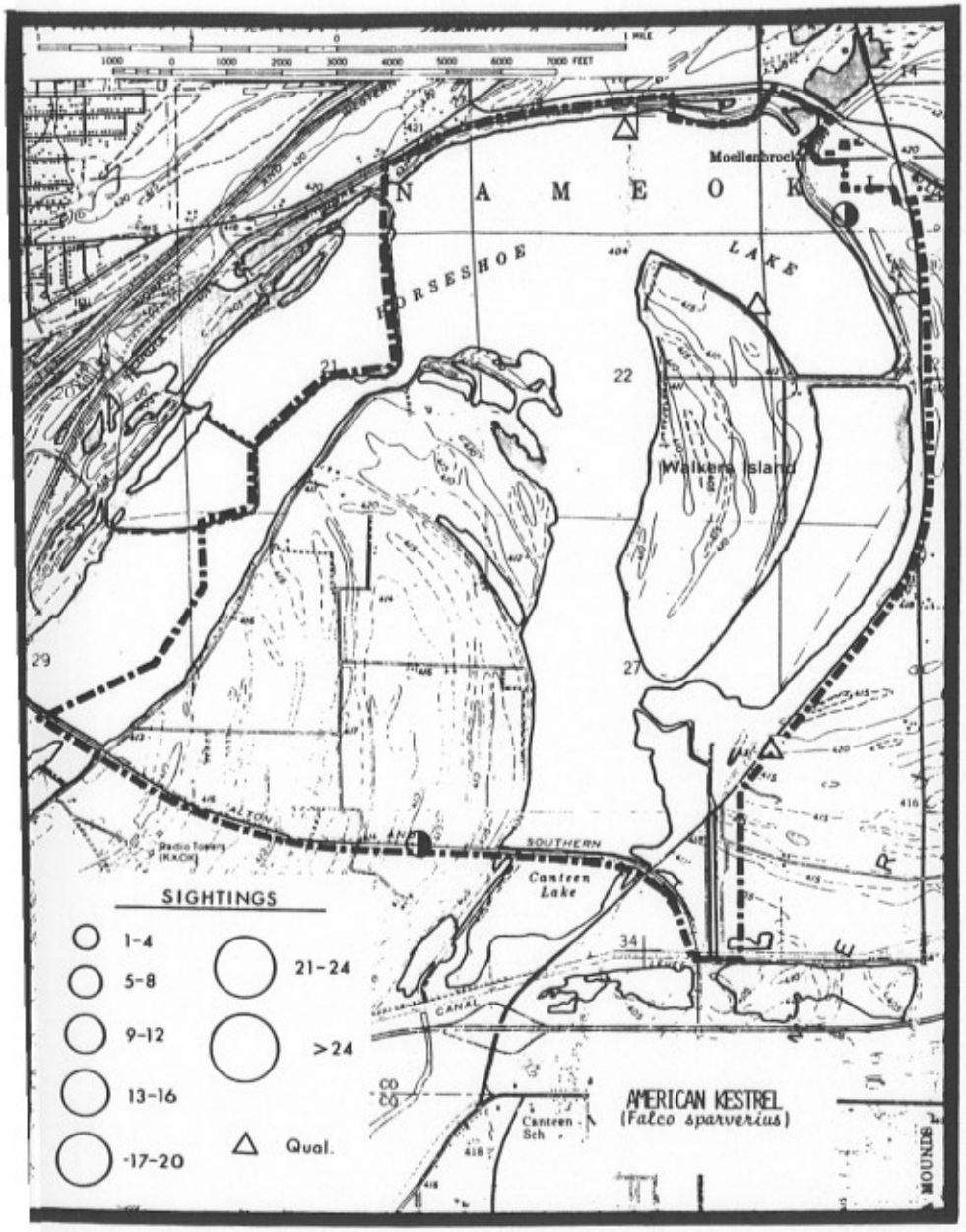
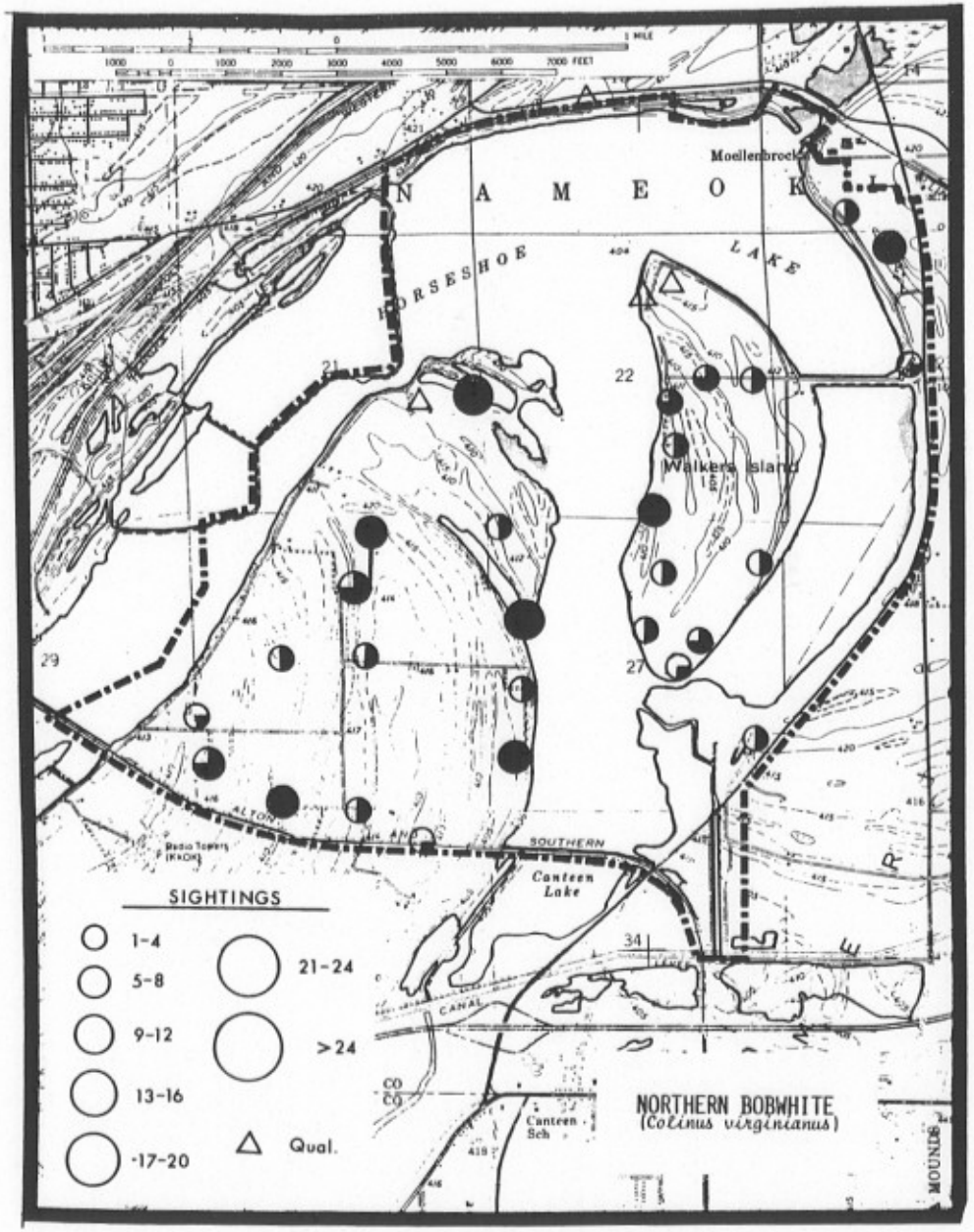
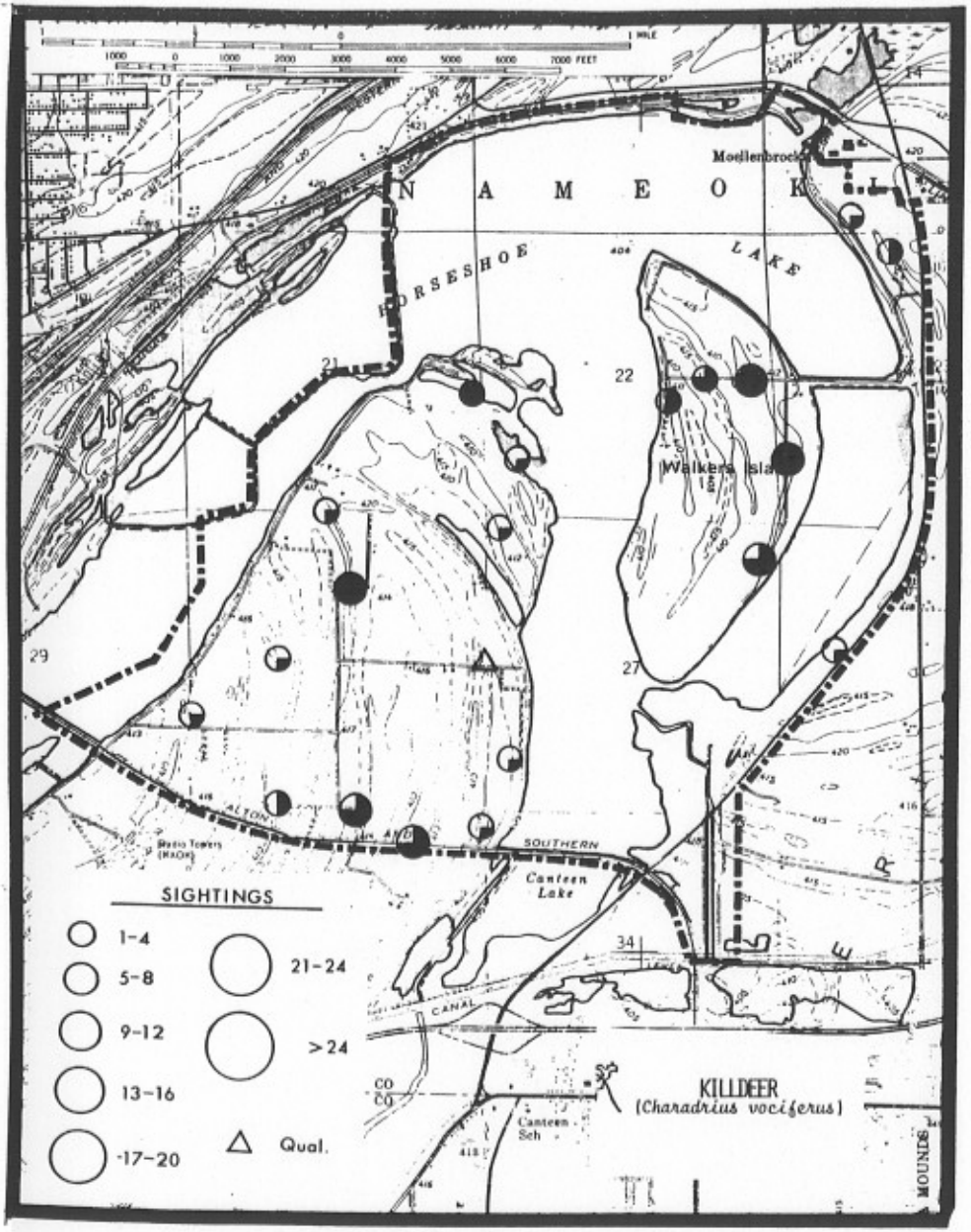
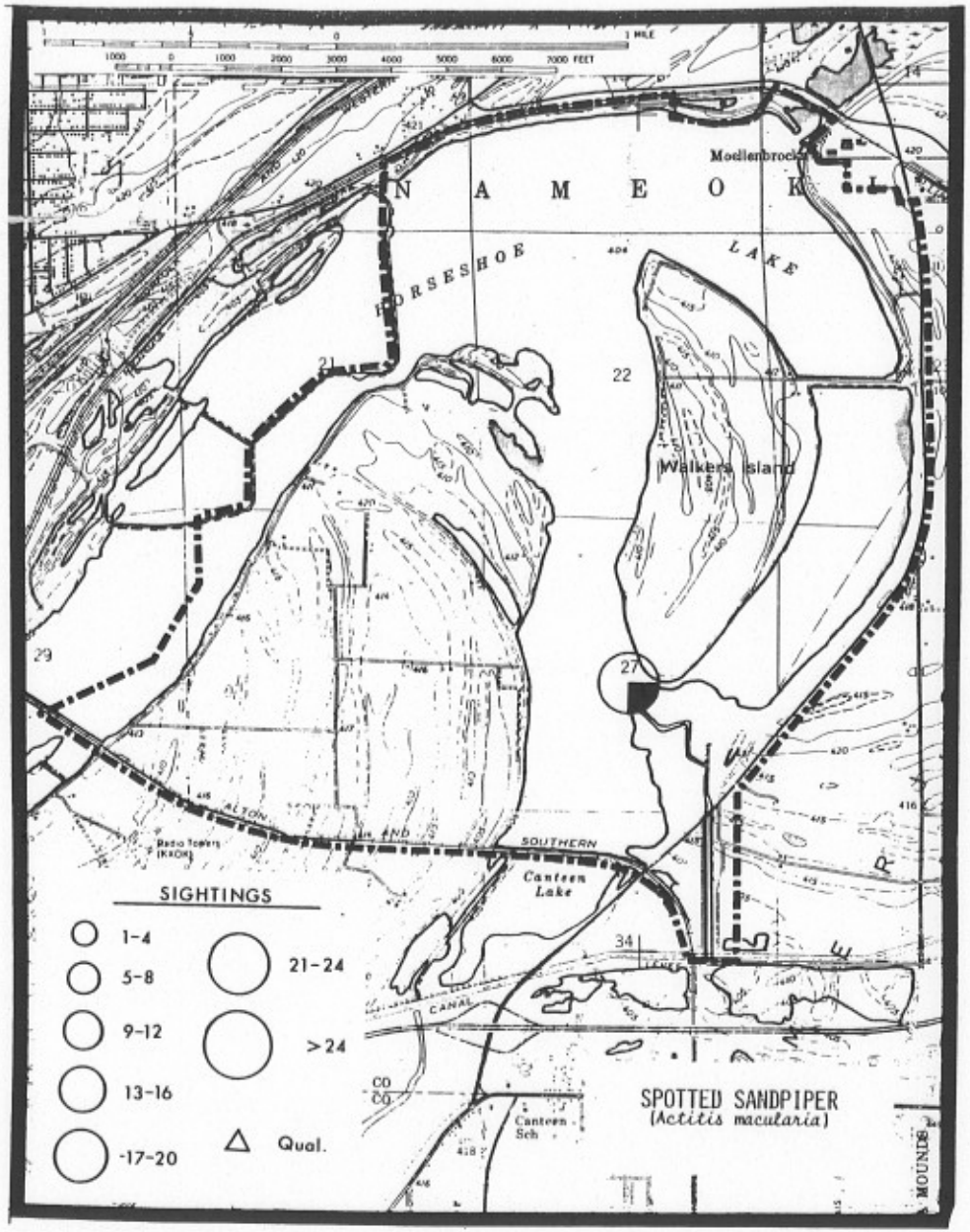
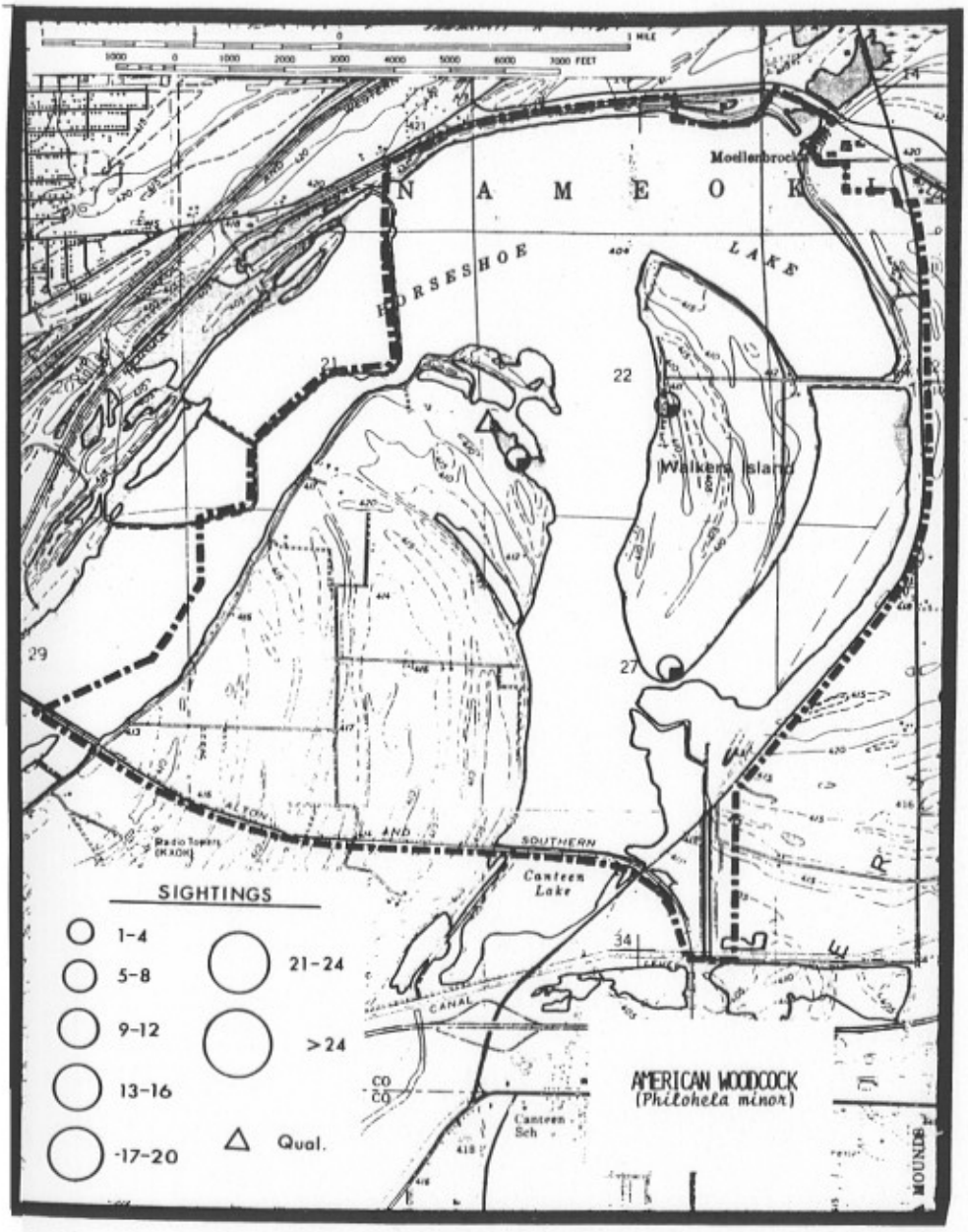
34
ALTON AND SOUTHERN
Radio Towers (KAOK)
Canteen Lake
CANAL
CO
Canteen Sch
SIGHTINGS
1-4
5-8
9-12
13-16
17-20
21-24
>24
Qual.
RED-TAILED HAWK
(Buteo jamaicensis)
MOUNDS

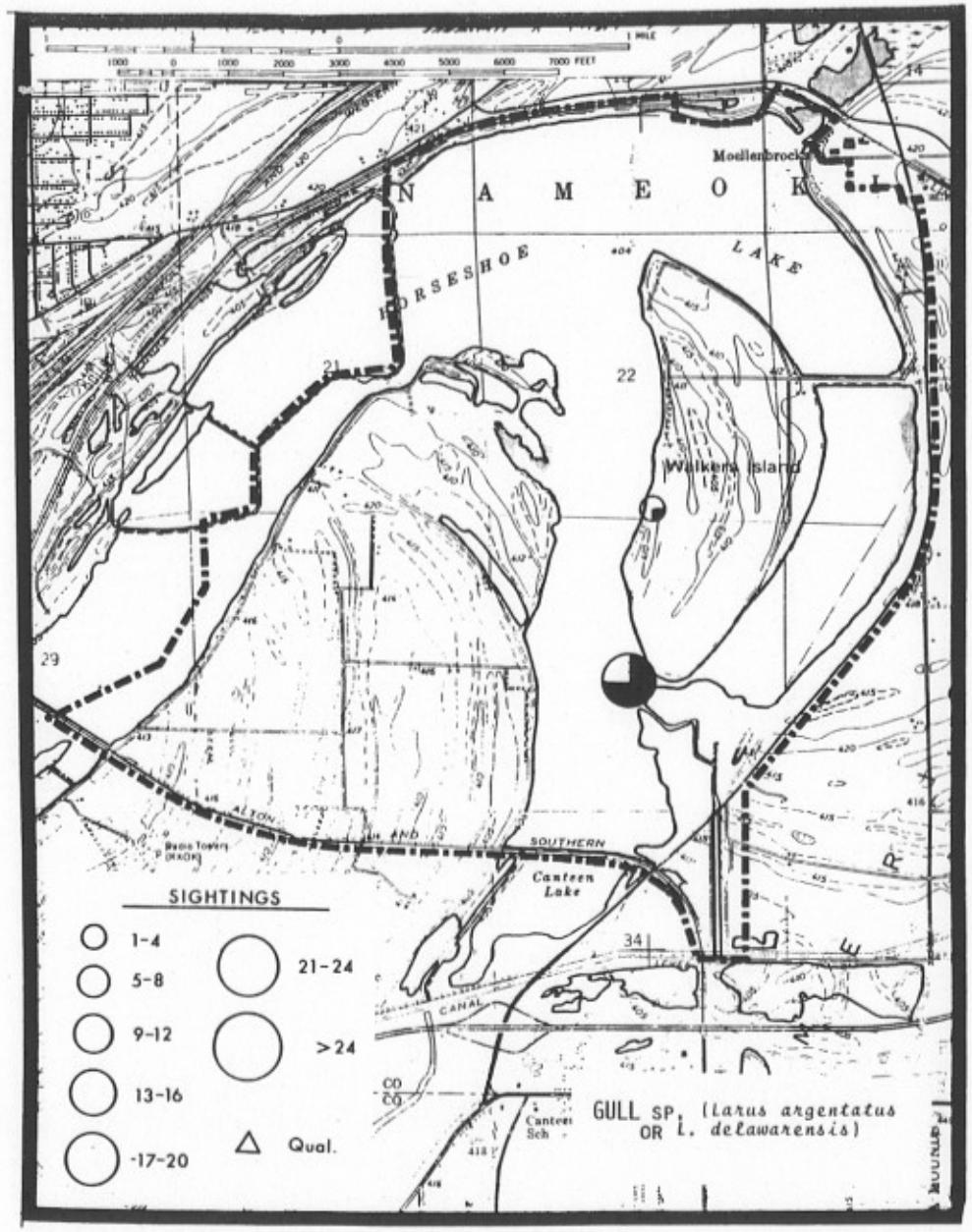

N A M E O K
HORSESHOE LAKE
Moellenbrock
Walkers Island
Canteen Lake
ALTON AND SOUTHERN
CANAL
Radio Towers (KAOK)
Canteen Sch
SIGHTINGS
1-4
5-8
9-12
13-16
17-20
21-24
>24
Qual.
AMERICAN KESTREL
(Falco sparverius)

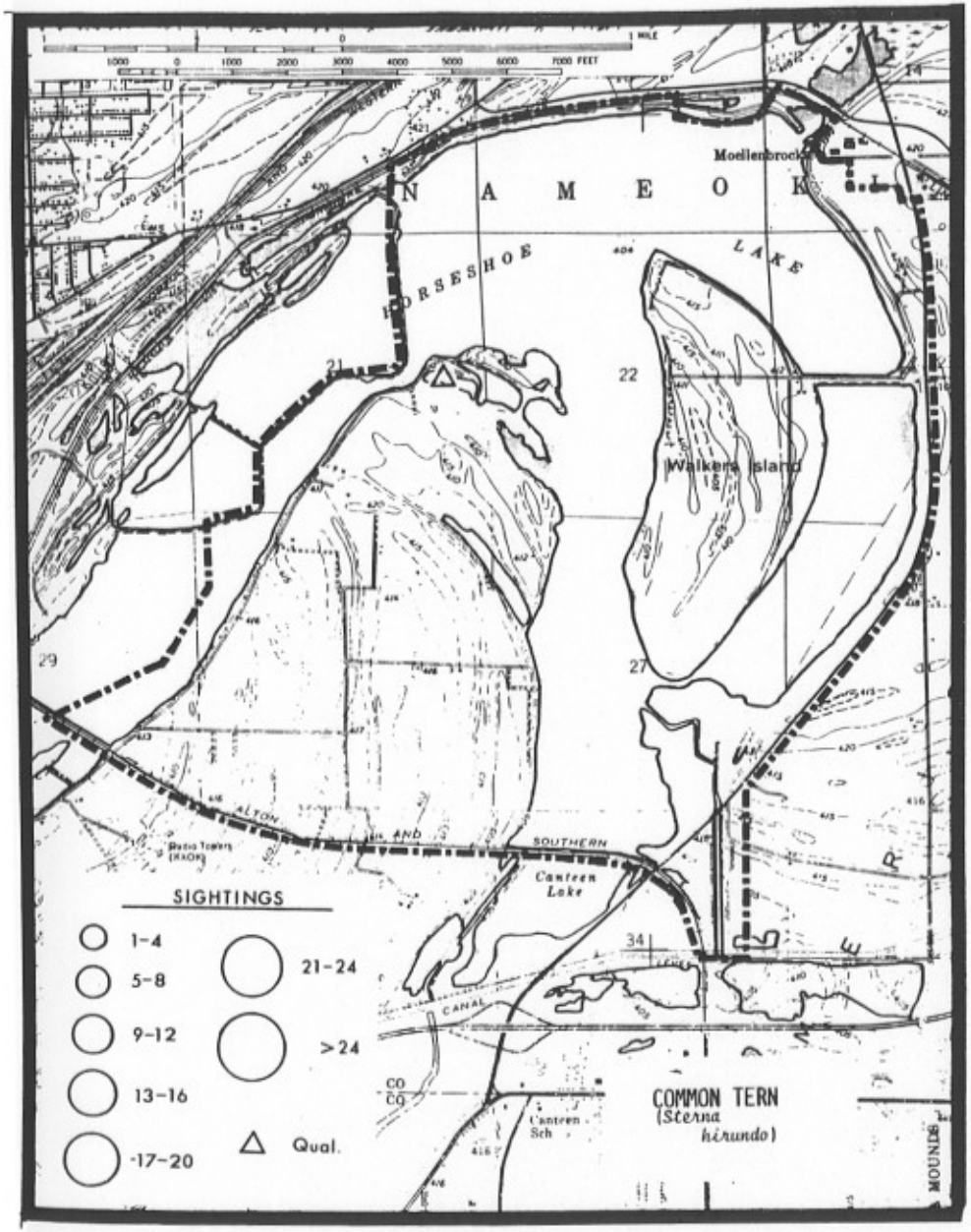

N A M E O K
HORSESHOE LAKE
Moellenbrock
Walkers Island
Canteen Lake
ALTON AND SOUTHERN
CANAL
Radio Towers (KAOK)
Canteen Sch
SIGHTINGS
1-4
5-8
9-12
13-16
17-20
21-24
>24
Qual.
NORTHERN BOBWHITE
(Colinus virginianus)

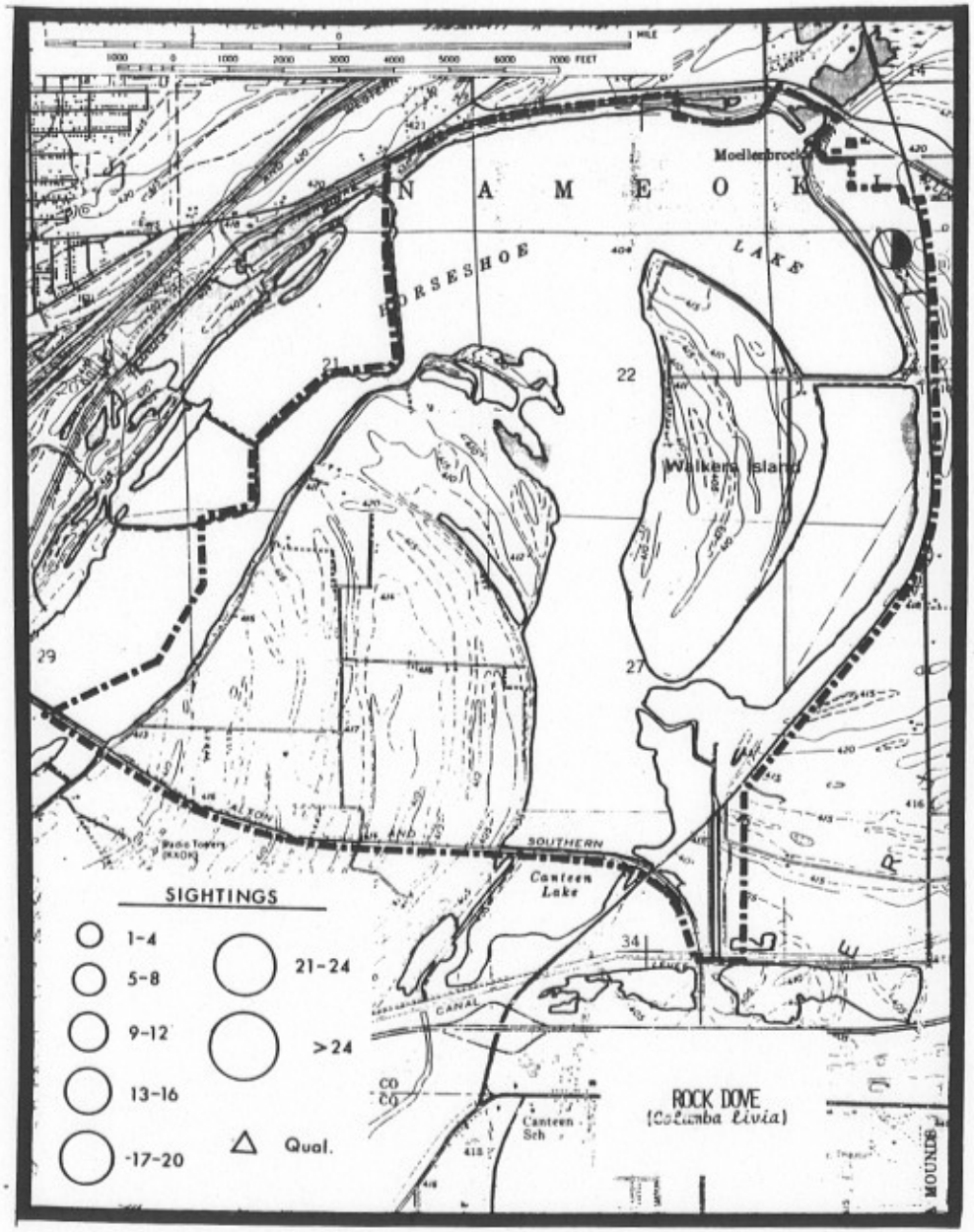

N A M E O K I
HORSESHOE LAKE
Walkers Island
Moellenbrock
SOUTHERN
Canteen Lake
CANAL
Canteen Sch
MOUNDS
SIGHTINGS
1-4
5-8
9-12
13-16
17-20
21-24
>24
Qual.
KILLDEER
(Charadrius vociferus)

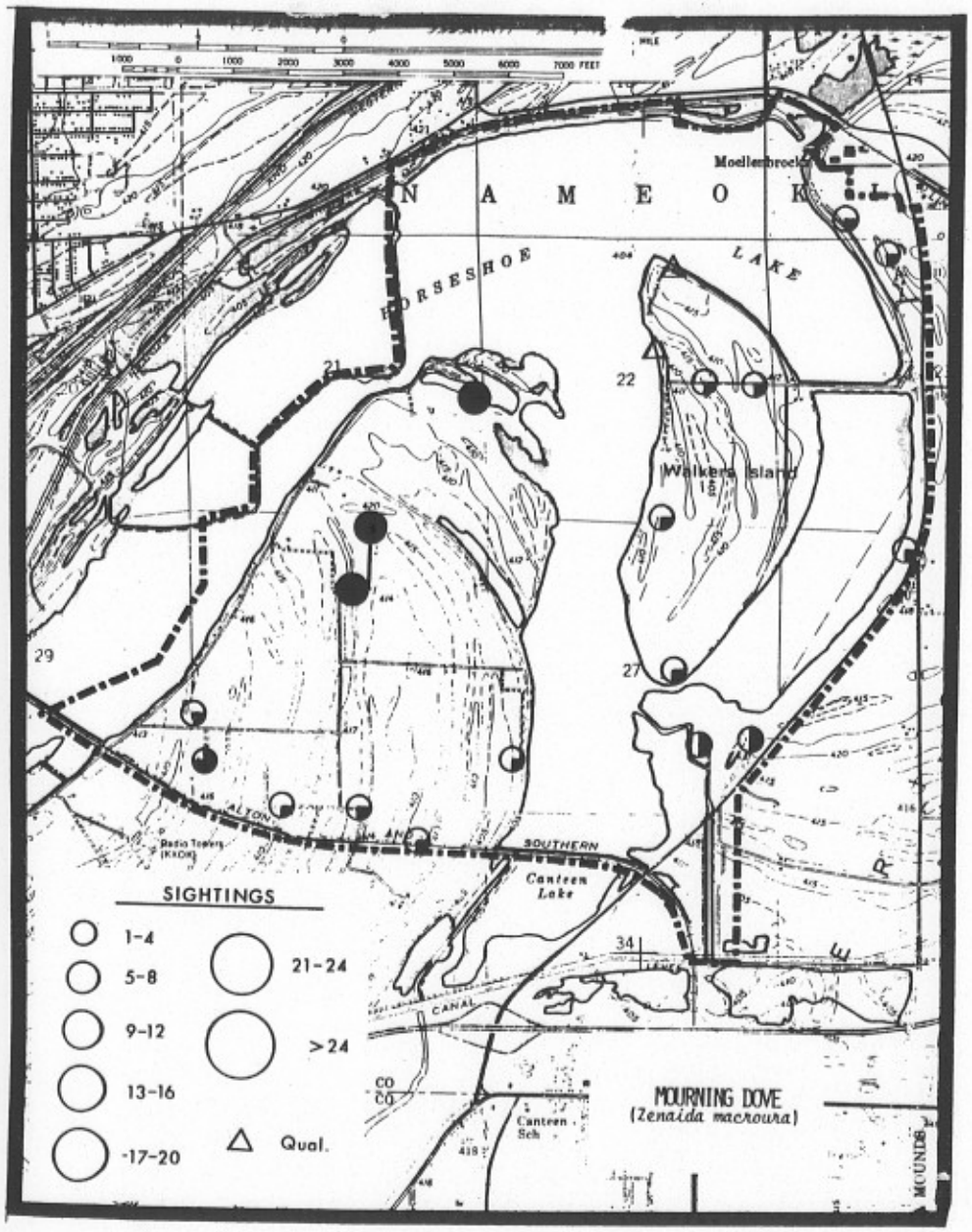

N A M E O K I
HORSESHOE LAKE
Walkers Island
Moellenbrock
SOUTHERN
Canteen Lake
CANAL
Canteen Sch
MOUNDS
SIGHTINGS
1-4
5-8
9-12
13-16
17-20
21-24
>24
Qual.
SPOTTED SANDPIPER
(Actitis macularia)

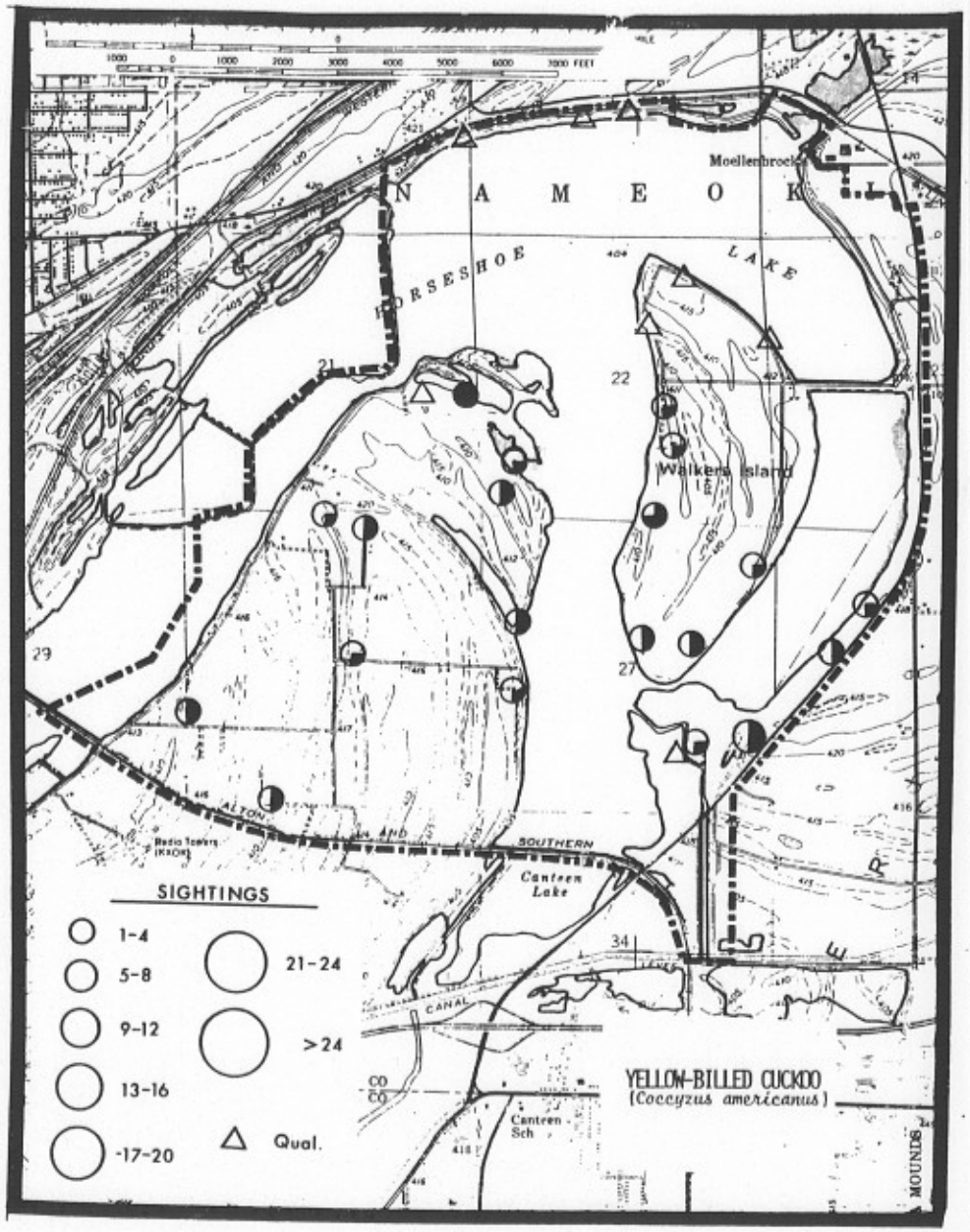

N A M E O K
HORSESHOE LAKE
Moellenbrock
Walkers Island
Canteen Lake
ALTON AND SOUTHERN
CANAL
Radio Towers (KXOK)
Canteen Sch
SIGHTINGS
1-4
5-8
9-12
13-16
17-20
21-24
>24
Qual.
AMERICAN WOODCOCK
(Philohela minor)

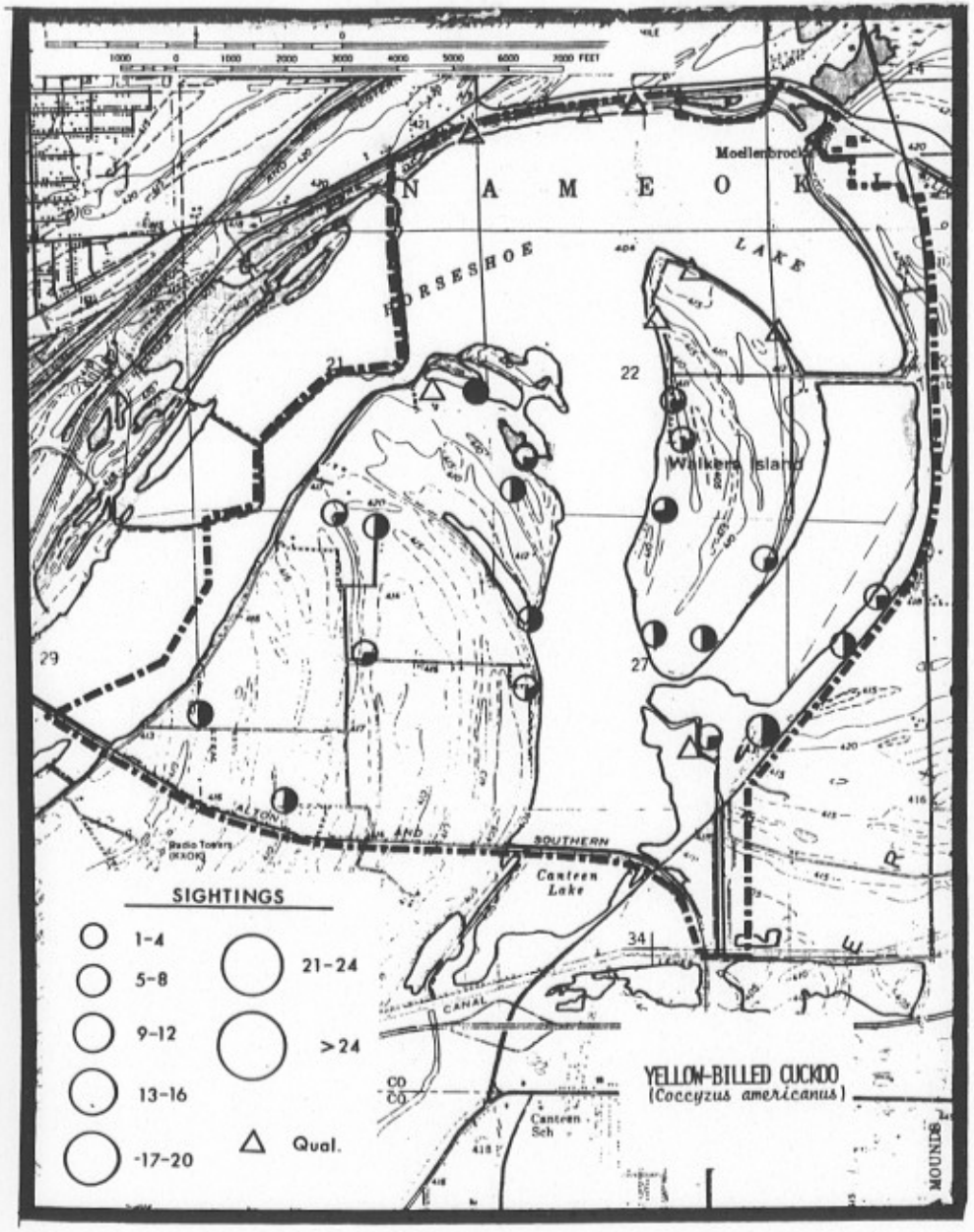

N A M E O K
HORSESHOE LAKE
Moellenbrock
Walkers Island
Canteen Lake
ALTON AND SOUTHERN
CANAL
Radio Towers (KXOK)
Canteen Sch
SIGHTINGS
1-4
5-8
9-12
13-16
17-20
21-24
>24
Qual.
GULL SP. (Larus argentatus
OR L. delawarensis)

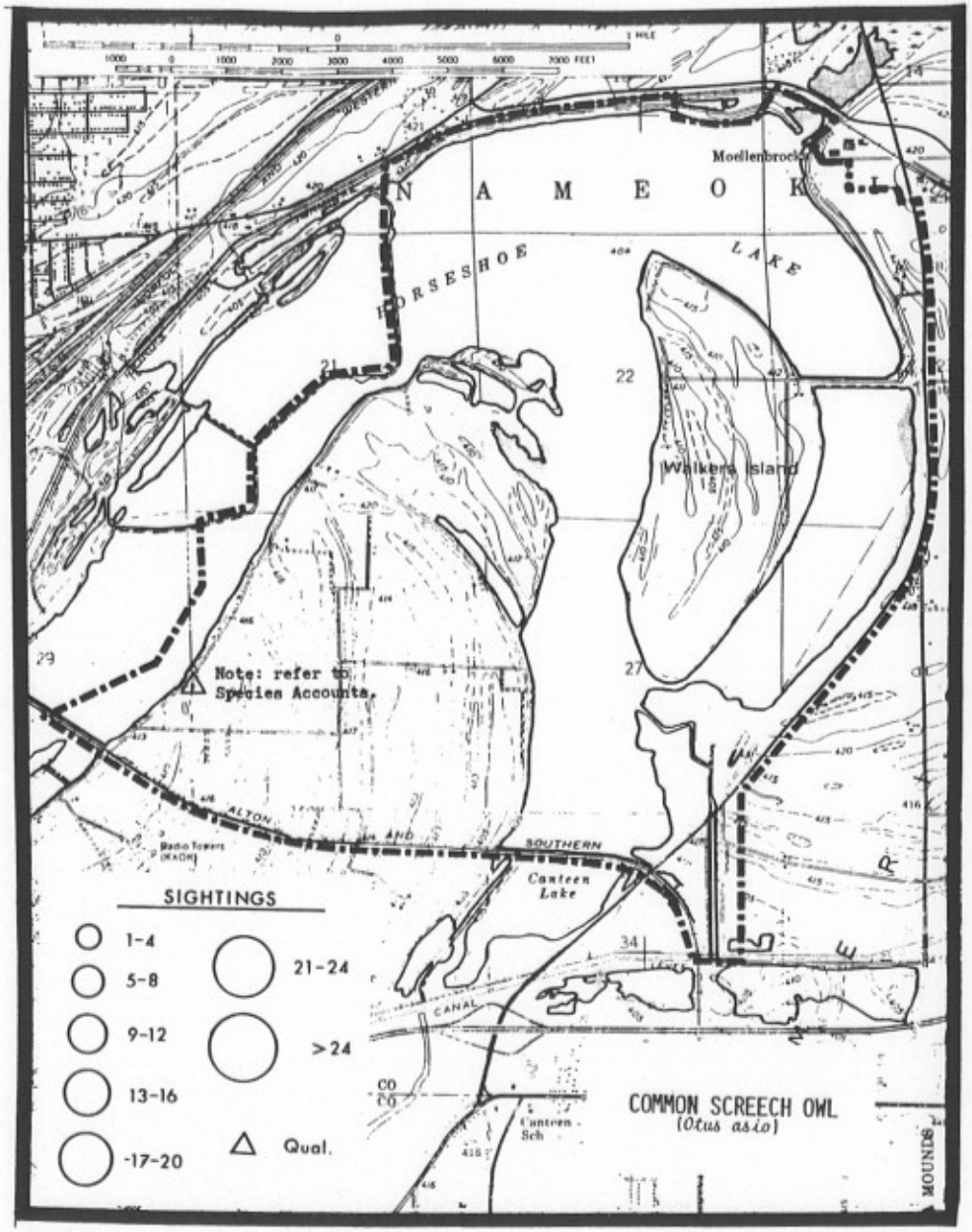

N A M E O K
HORSESHOE LAKE
Moellenbrock
Walkers Island
Canteen Lake
ALTON AND SOUTHERN
CANAL
Canteen Sch
MOUNDS
SIGHTINGS
1-4
5-8
9-12
13-16
17-20
21-24
>24
Qual.
COMMON TERN
(Sterna hirundo)

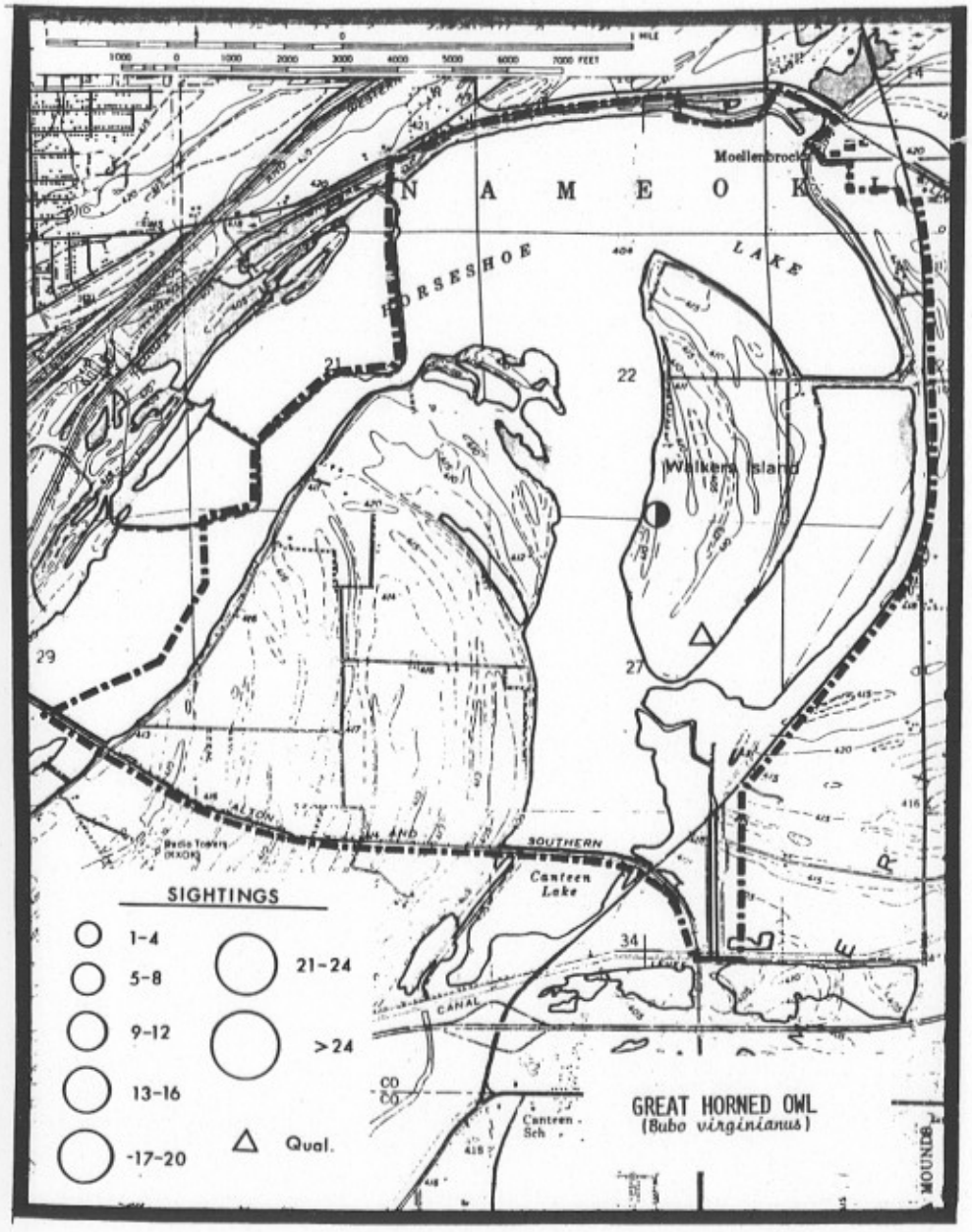

N A M E O K
HORSESHOE LAKE
Moellenbrock
Walkers Island
Canteen Lake
ALTON AND SOUTHERN
CANAL
Canteen Sch
MOUNDS
SIGHTINGS
1-4
5-8
9-12
13-16
17-20
21-24
>24
Qual.
ROCK DOVE
(Columba livia)

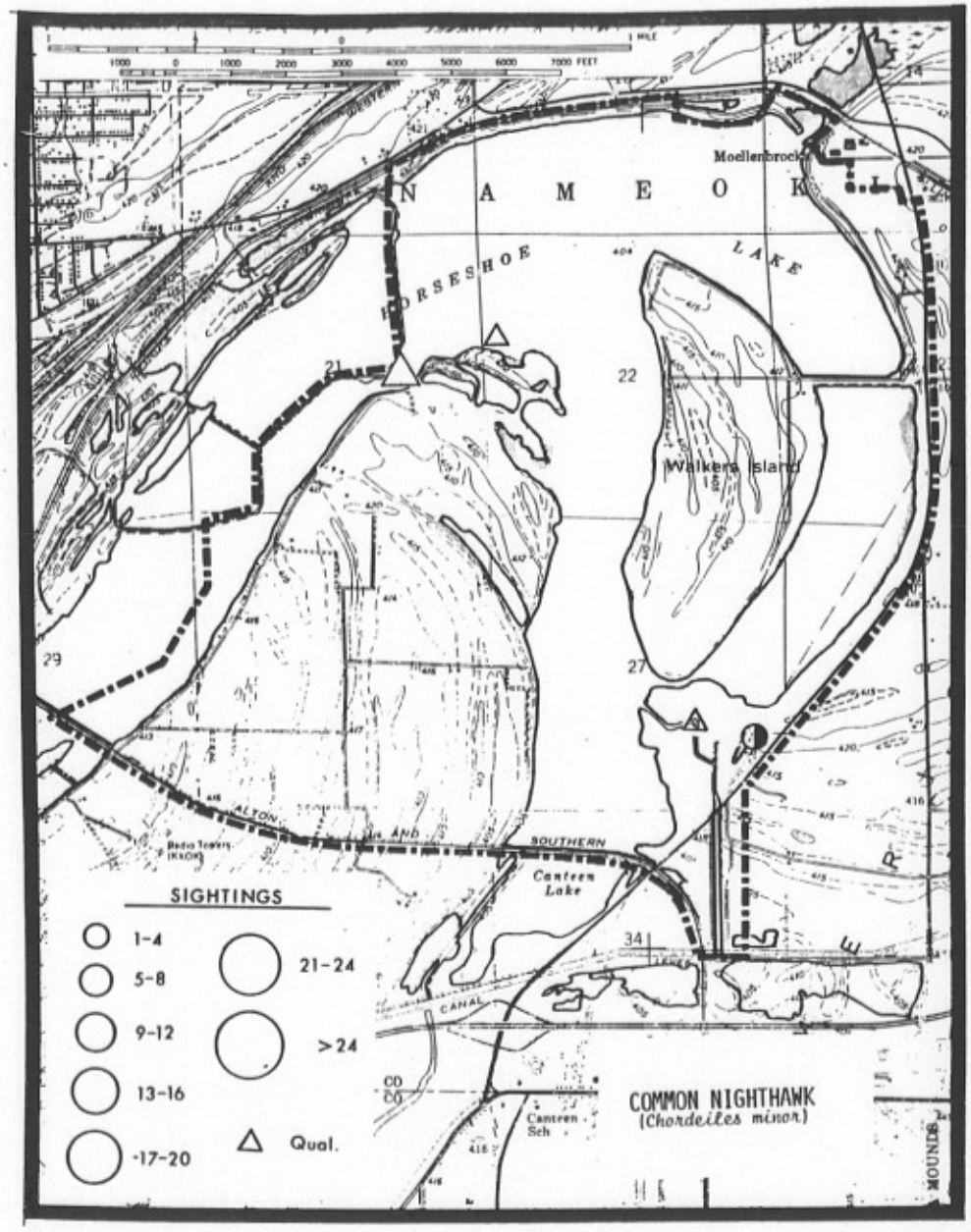

N A M E O K
HORSESHOE LAKE
Moellenbrock
Walkers Island
Canteen Lake
ALTON AND SOUTHERN
CANAL
Radio Towers (KAOK)
Canteen Sch
SIGHTINGS
1-4
5-8
9-12
13-16
17-20
21-24
>24
Qual.
MOURNING DOVE
(Zenaida macroura)

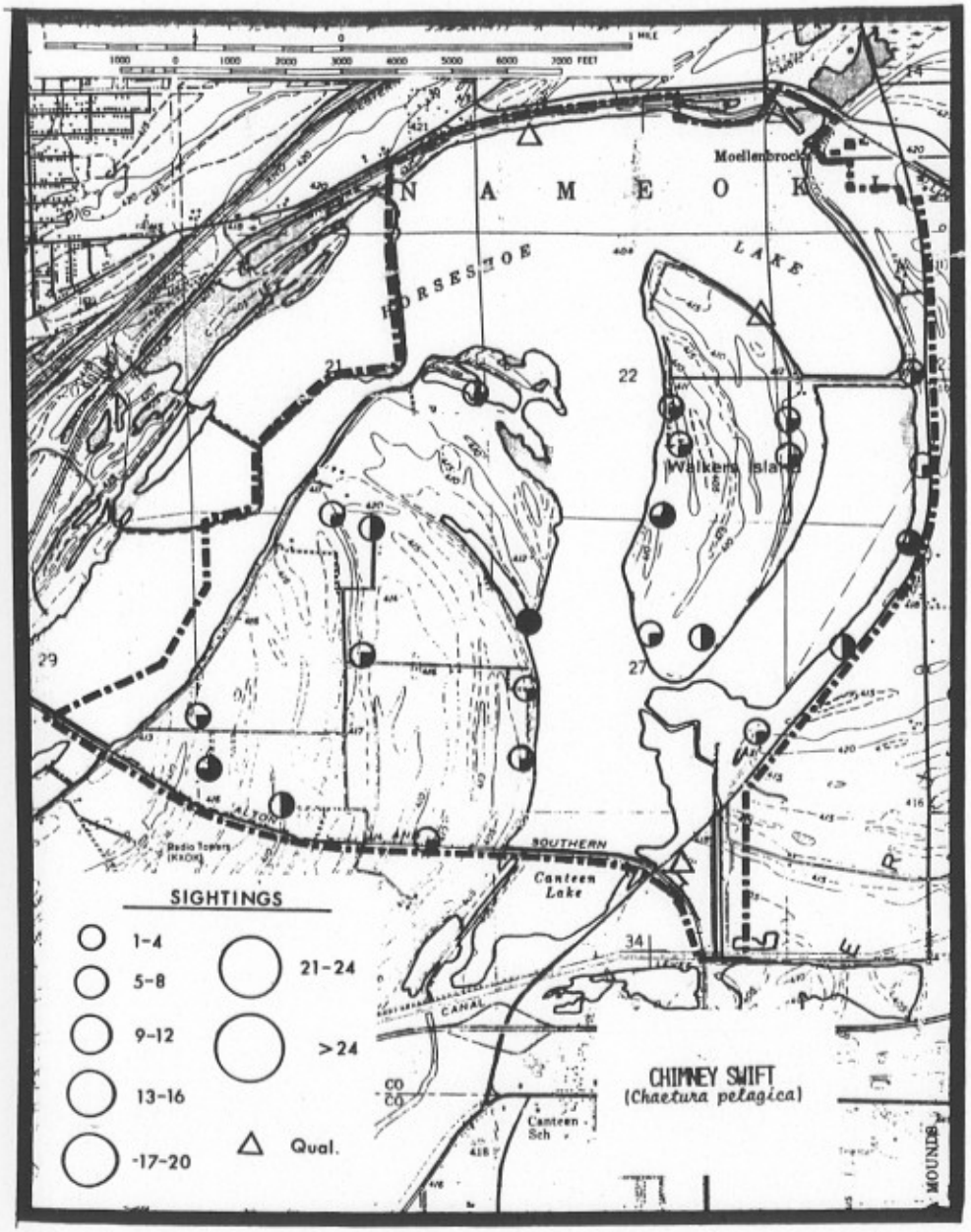

N A M E O K
HORSESHOE LAKE
Moellenbrock
Walkers Island
Canteen Lake
ALTON AND SOUTHERN
CANAL
Radio Towers (KAOK)
Canteen Sch
SIGHTINGS
1-4
5-8
9-12
13-16
17-20
21-24
>24
Qual.
YELLOW-BILLED CUCKOO
(Coccyzus americanus)

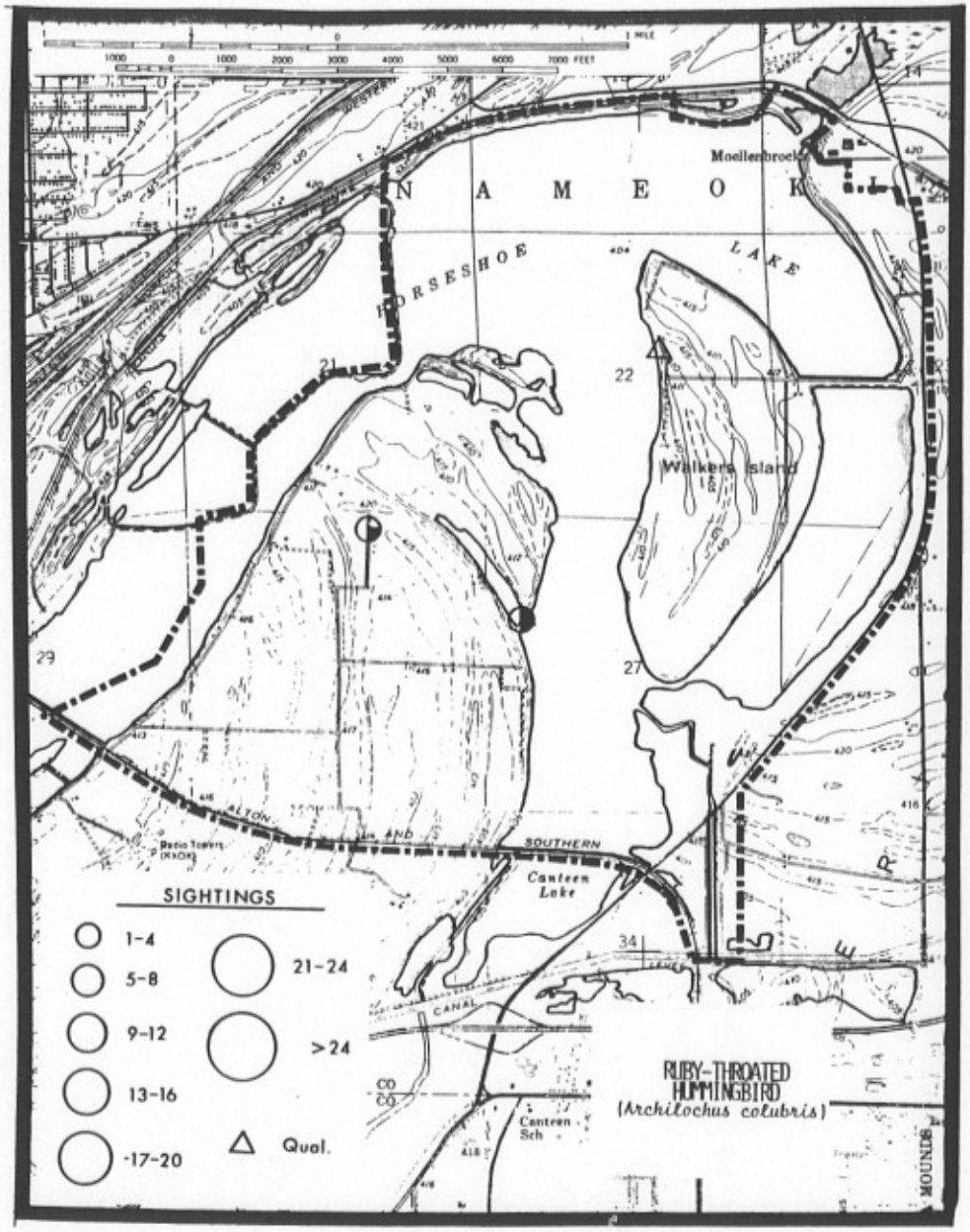

N A M E O K I
HORSESHOE LAKE
Moellenbrock
Walkers Island
Canteen Lake
ALTON AND SOUTHERN
CANAL
Radio Towers (KAOK)
Canteen Sch
MOUNDS
SIGHTINGS
1-4
5-8
9-12
13-16
-17-20
21-24
>24
Qual.
YELLOW-BILLED CUCKOO
(Coccyzus americanus)

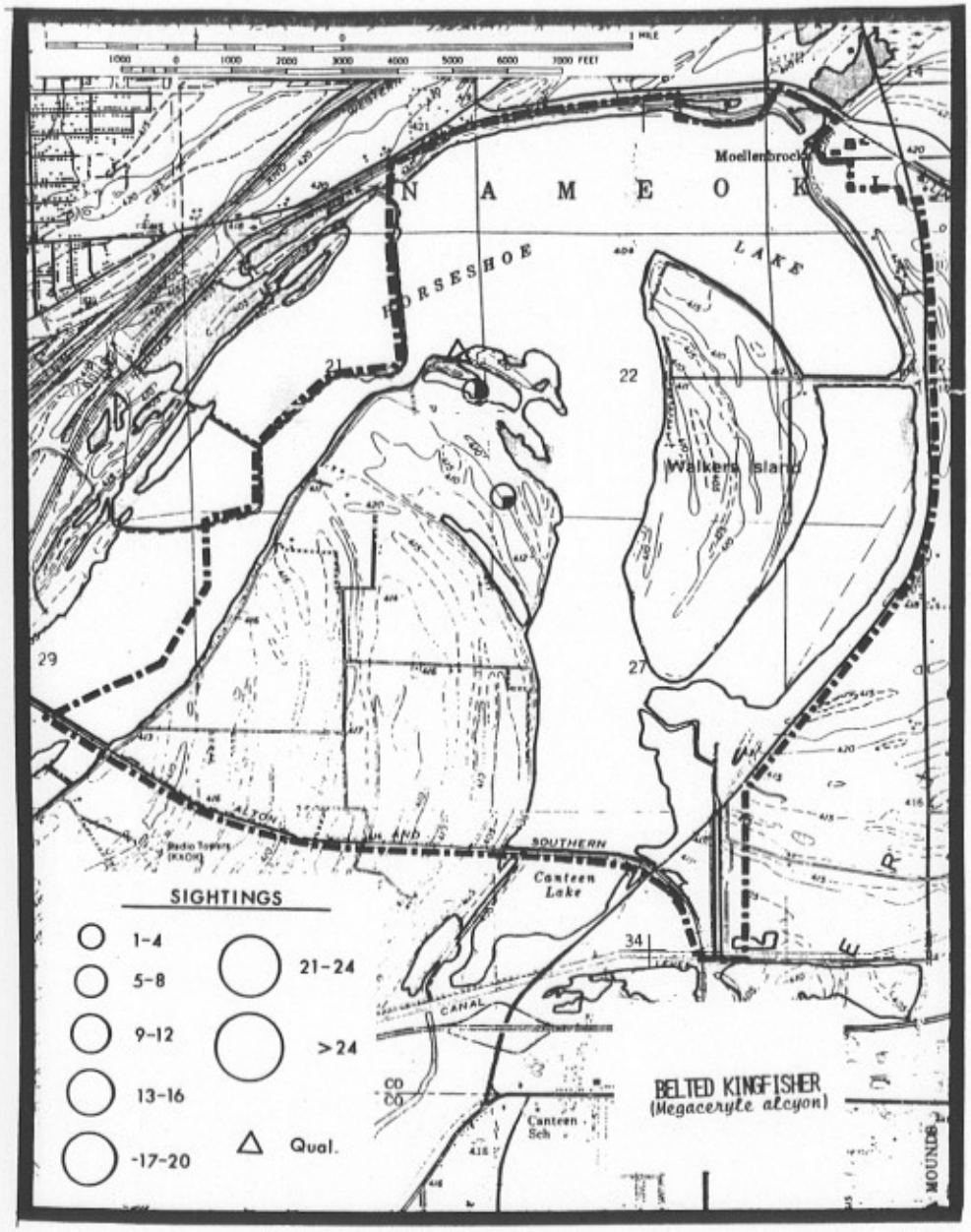

N A M E O K I
HORSESHOE LAKE
Moellenbrock
Walkers Island
Note: refer to Species Accounts.
Canteen Lake
ALTON AND SOUTHERN
CANAL
Radio Towers (KAOK)
Canteen Sch
MOUNDS
SIGHTINGS
1-4
5-8
9-12
13-16
-17-20
21-24
>24
Qual.
COMMON SCREECH OWL
(Otus asio)

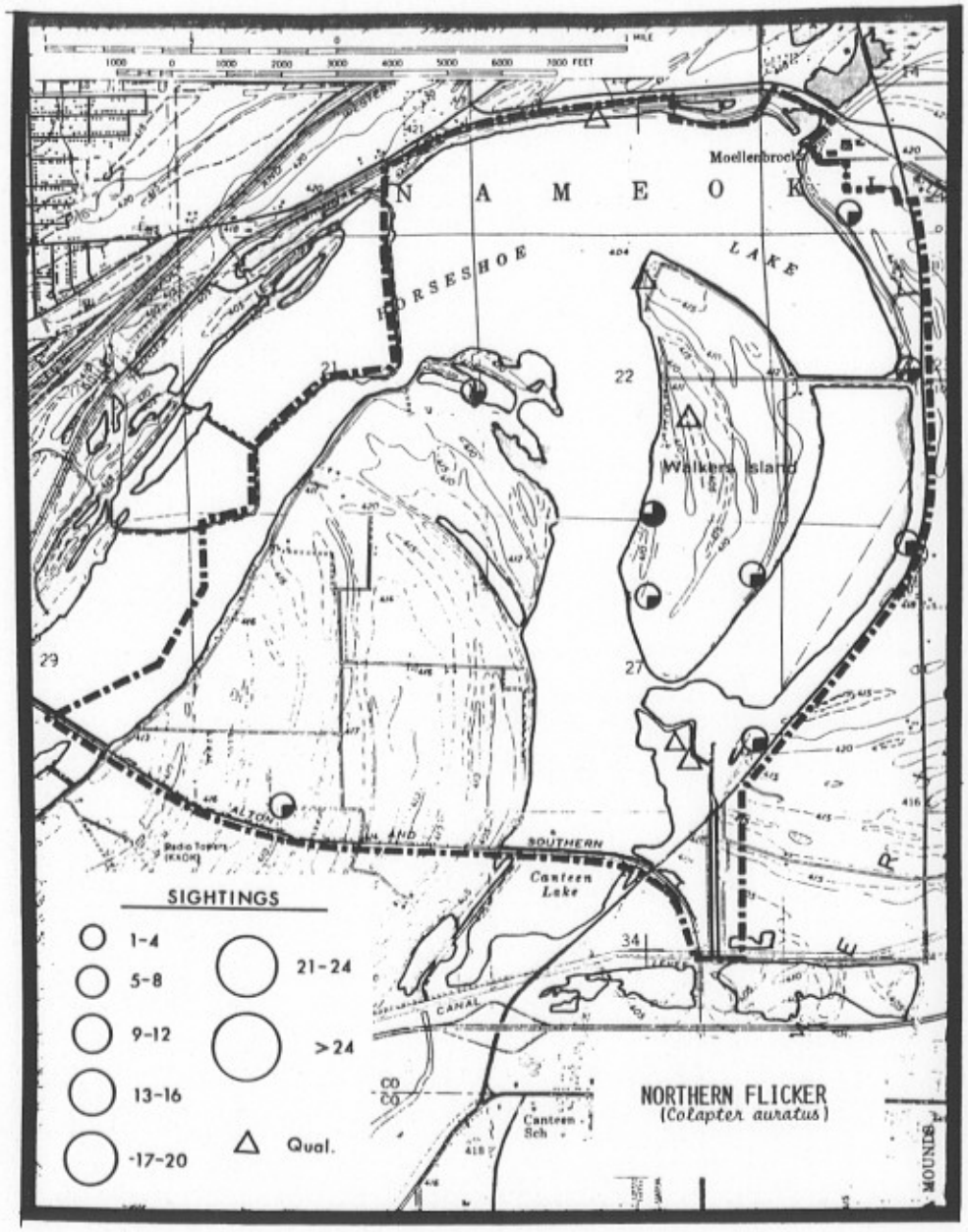

N A M E O K
HORSESHOE LAKE
Moellenbrock
Walkers Island
Canteen Lake
ALTON AND SOUTHERN
CANAL
Canteen Sch
MOUNDS
SIGHTINGS
1-4
5-8
9-12
13-16
-17-20
21-24
>24
Qual.
GREAT HORNED OWL
(Bubo virginianus)

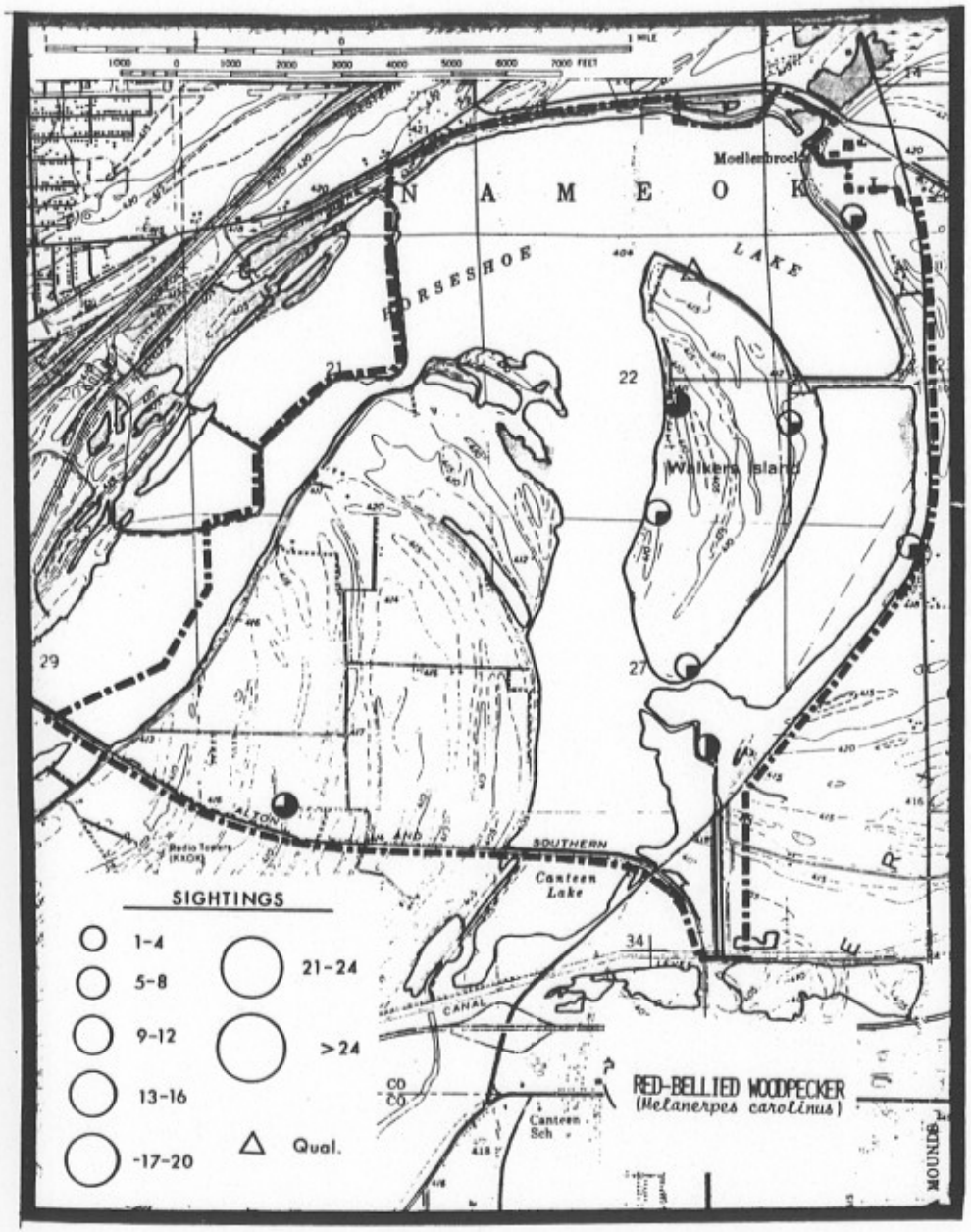

N A M E O K
HORSESHOE LAKE
Moellenbrock
Walkers Island
Canteen Lake
ALTON AND SOUTHERN
CANAL
Canteen Sch
MOUNDS
SIGHTINGS
1-4
5-8
9-12
13-16
-17-20
21-24
>24
Qual.
COMMON NIGHTHAWK
(Chordeiles minor)

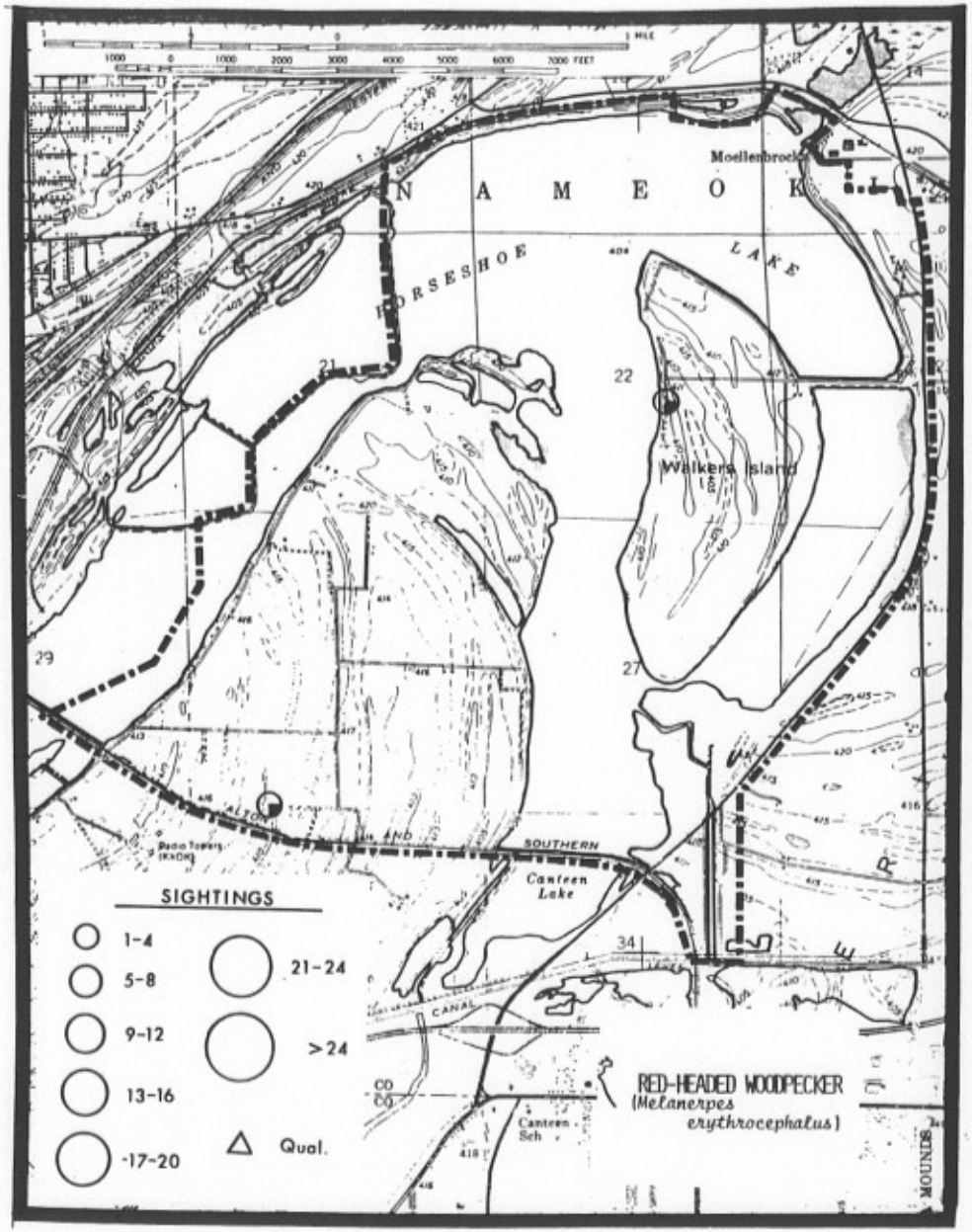

N A M E O K
HORSESHOE LAKE
Moellenbrock
Walkers Island
Canteen Lake
SOUTHERN
ALTON AND
CANAL
Canteen Sch
Radio Towers (KKOK)
SIGHTINGS
1-4
5-8
9-12
13-16
17-20
21-24
>24
Qual.
CHIMNEY SWIFT
(Chaetura pelagica)
MOUNDS

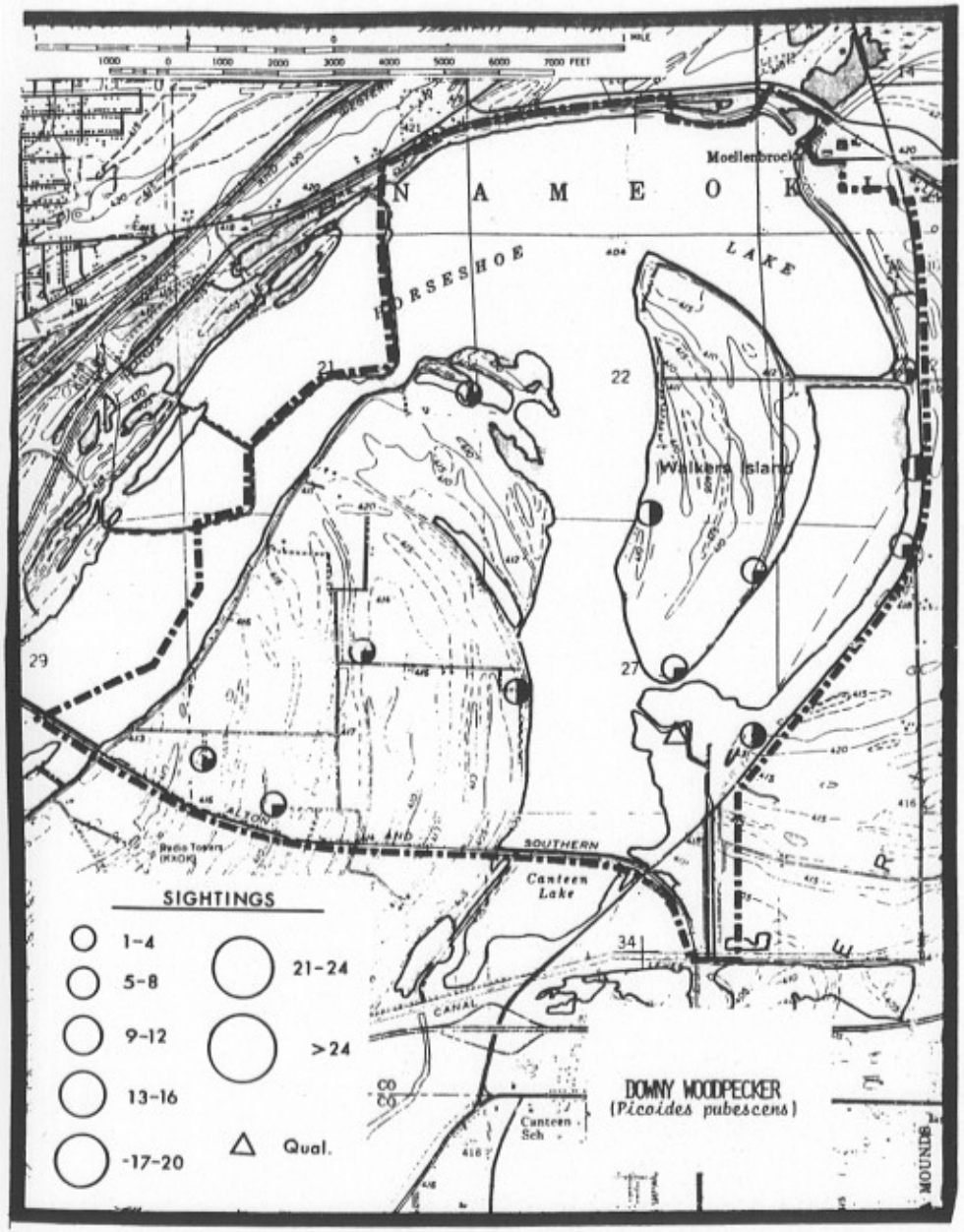

N A M E O K
HORSESHOE LAKE
Moellenbrock
Walkers Island
Canteen Lake
SOUTHERN
ALTON AND
CANAL
Canteen Sch
Radio Towers (KKOK)
SIGHTINGS
1-4
5-8
9-12
13-16
17-20
21-24
>24
Qual.
RUBY-THROATED HUMMINGBIRD
(Archilochus colubris)
MOUNDS

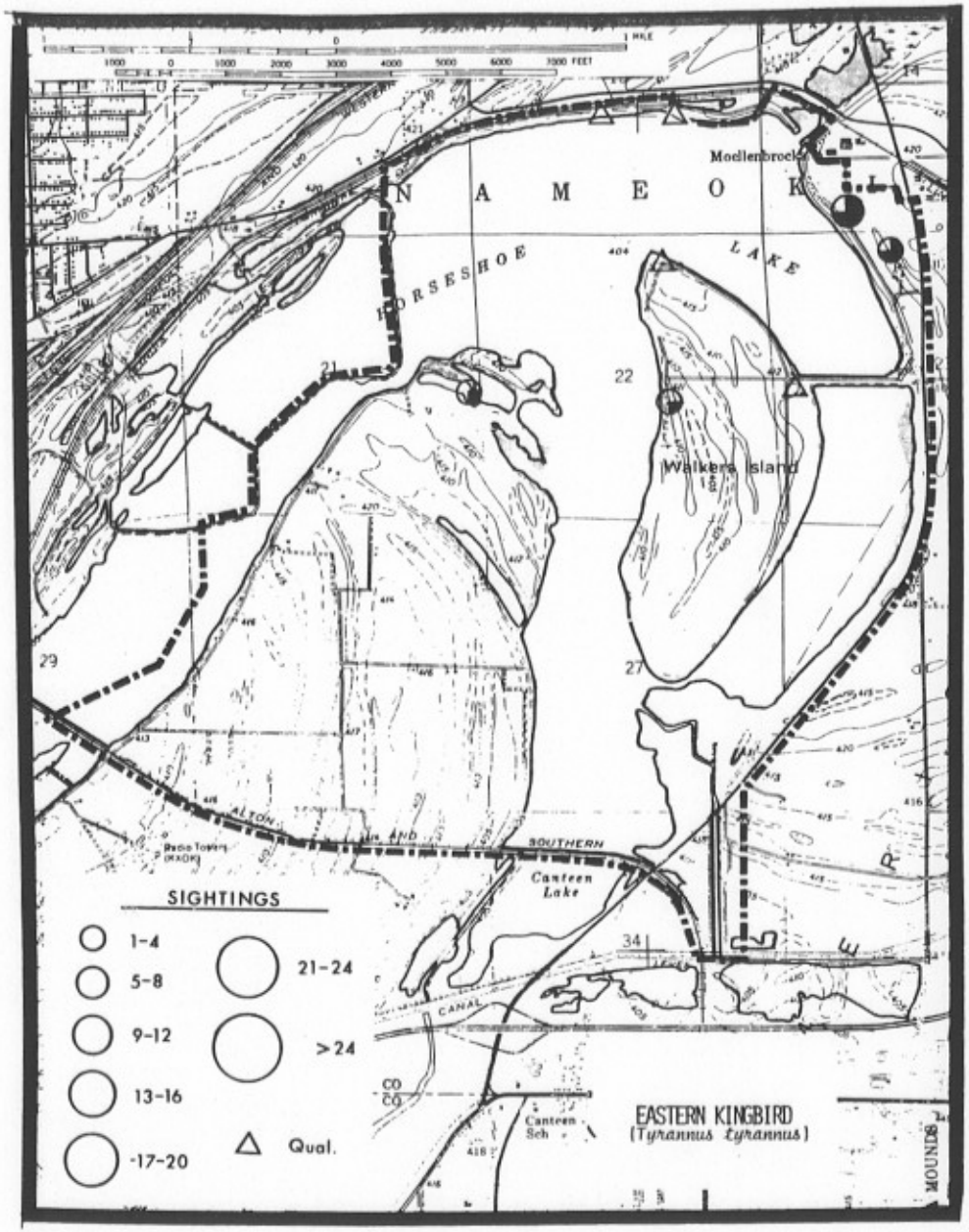

BELTED KINGFISHER
(Megaceryle alcyon)
SIGHTINGS
1-4
5-8
9-12
13-16
-17-20
21-24
>24
Qual.
Moellenbrock
N A M E O K I
HORSESHOE LAKE
Walkers Island
Canteen Lake
ALTON AND SOUTHERN
CANAL
Radio Towers (KXOK)
Canteen Sch
MOUNDS
21
22
27
29
34

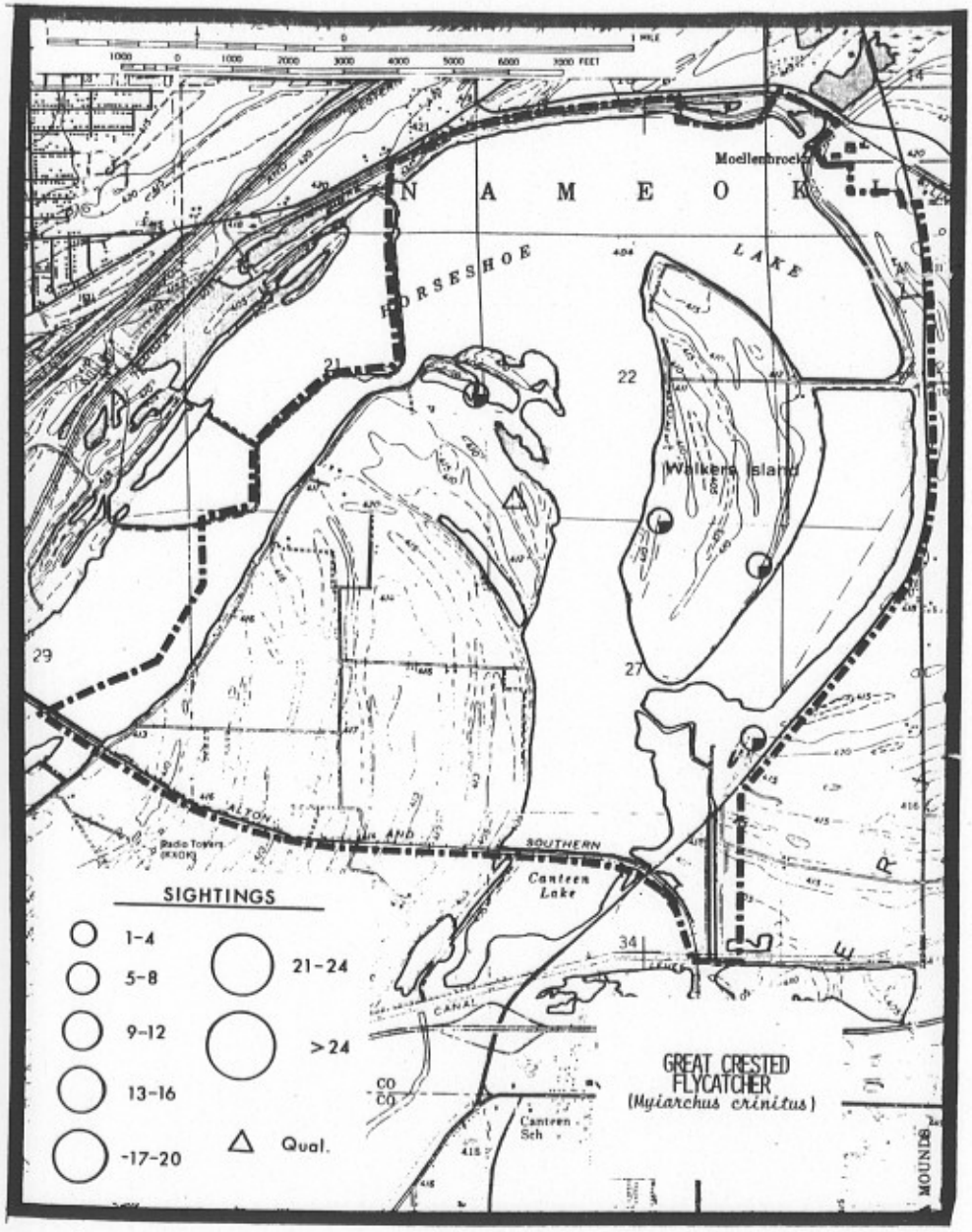

NORTHERN FLICKER
(Colapter auratus)
SIGHTINGS
1-4
5-8
9-12
13-16
-17-20
21-24
>24
Qual.
Moellenbrock
N A M E O K I
HORSESHOE LAKE
Walkers Island
Canteen Lake
ALTON AND SOUTHERN
CANAL
Radio Towers (KXOK)
Canteen Sch
MOUNDS
21
22
27
29
34

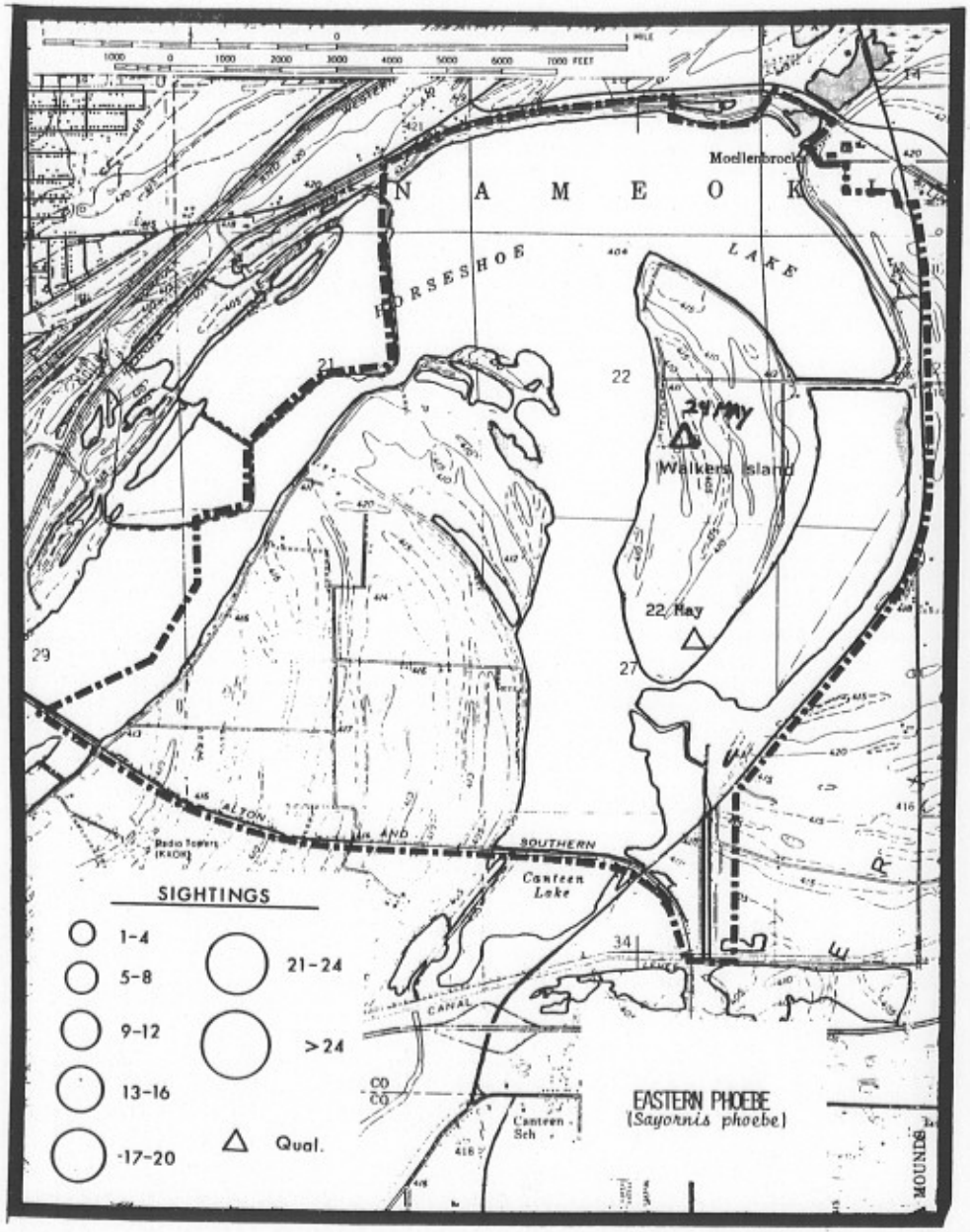

N A M E O K
HORSESHOE LAKE
Moellenbrock
Walkers Island
Canteen Lake
ALTON AND SOUTHERN
CANAL
Radio Towers (KXOK)
Canteen Sch
MOUNDS
SIGHTINGS
1-4
5-8
9-12
13-16
-17-20
21-24
>24
Qual.
RED-BELLIED WOODPECKER
(Melanerpes carolinus)

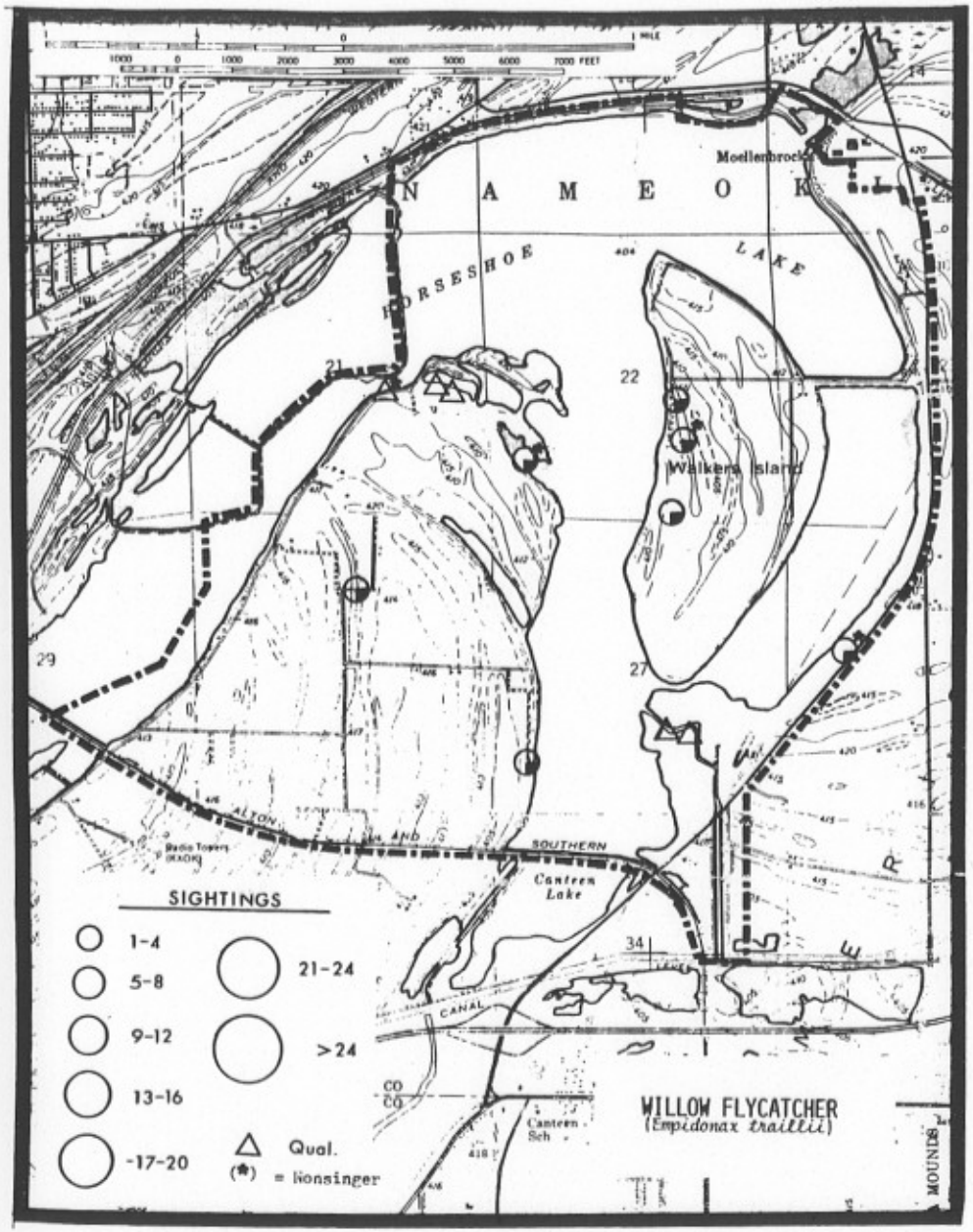

N A M E O K
HORSESHOE LAKE
Moellenbrock
Walkers Island
Canteen Lake
ALTON AND SOUTHERN
CANAL
Radio Towers (KXOK)
Canteen Sch
MOUNDS
SIGHTINGS
1-4
5-8
9-12
13-16
-17-20
21-24
>24
Qual.
RED-HEADED WOODPECKER
(Melanerpes erythrocephalus)

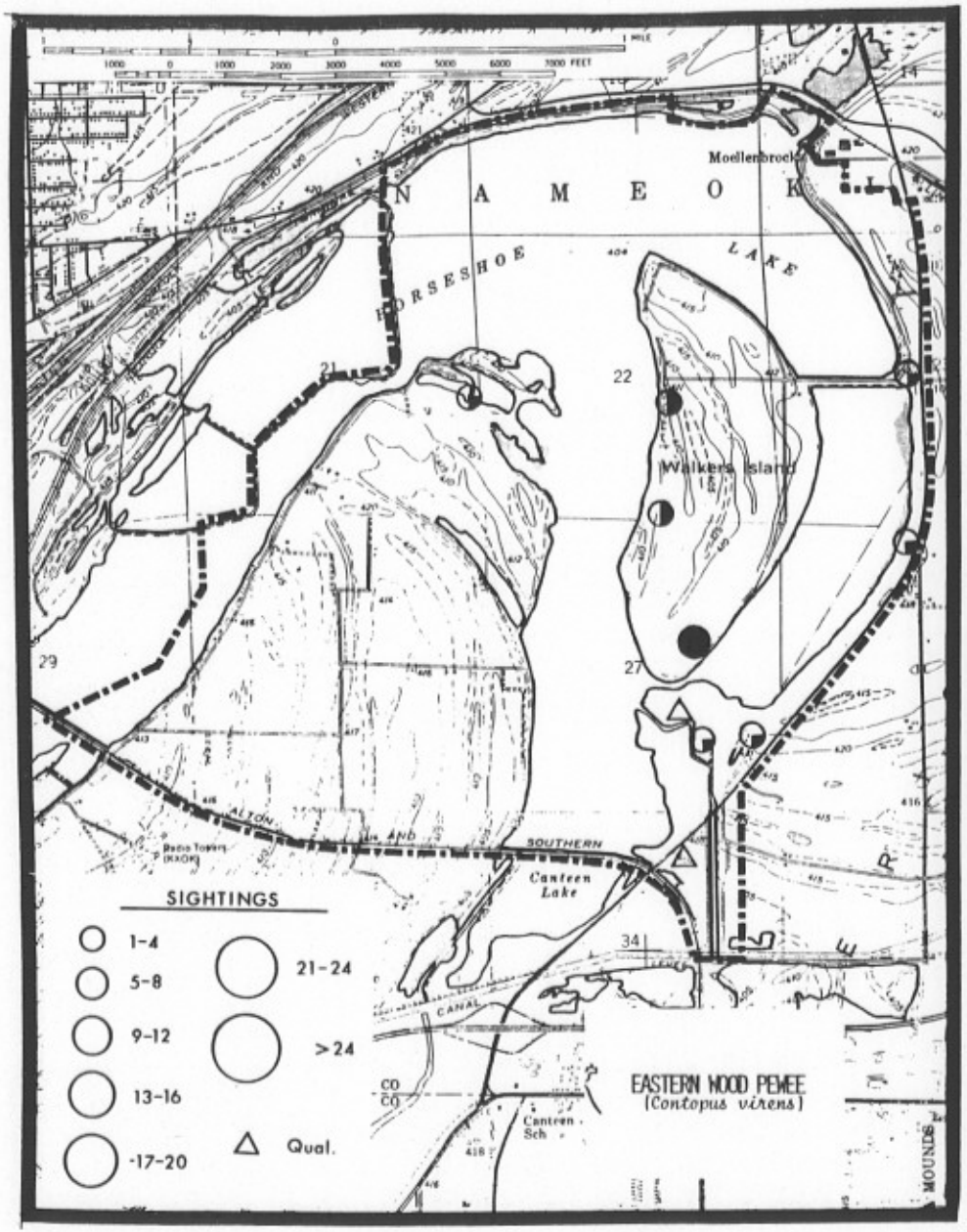

N A M E O K I
HORSESHOE LAKE
Moellenbrock
Walkers Island
Canteen Lake
SOUTHERN
ALTON
CANAL
Radio Towers (KXOK)
Canteen Sch
MOUNDS
SIGHTINGS
1-4
5-8
9-12
13-16
-17-20
21-24
>24
Qual.
DOWNY WOODPECKER
(Picoides pubescens)

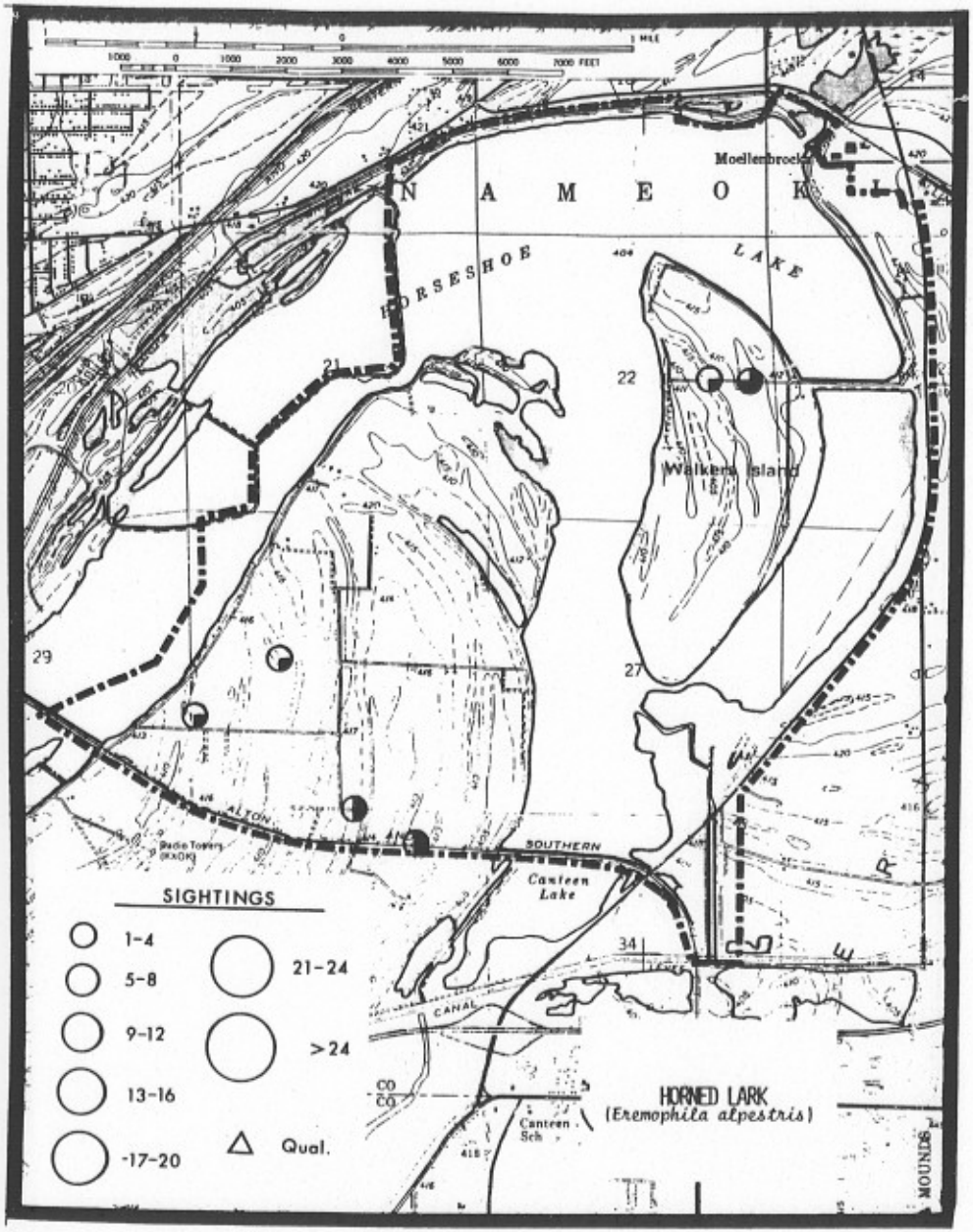

N A M E O K I
HORSESHOE LAKE
Moellenbrock
Walkers Island
Canteen Lake
SOUTHERN
ALTON
CANAL
Radio Towers (KXOK)
Canteen Sch
MOUNDS
SIGHTINGS
1-4
5-8
9-12
13-16
-17-20
21-24
>24
Qual.
EASTERN KINGBIRD
(Tyrannus tyrannus)

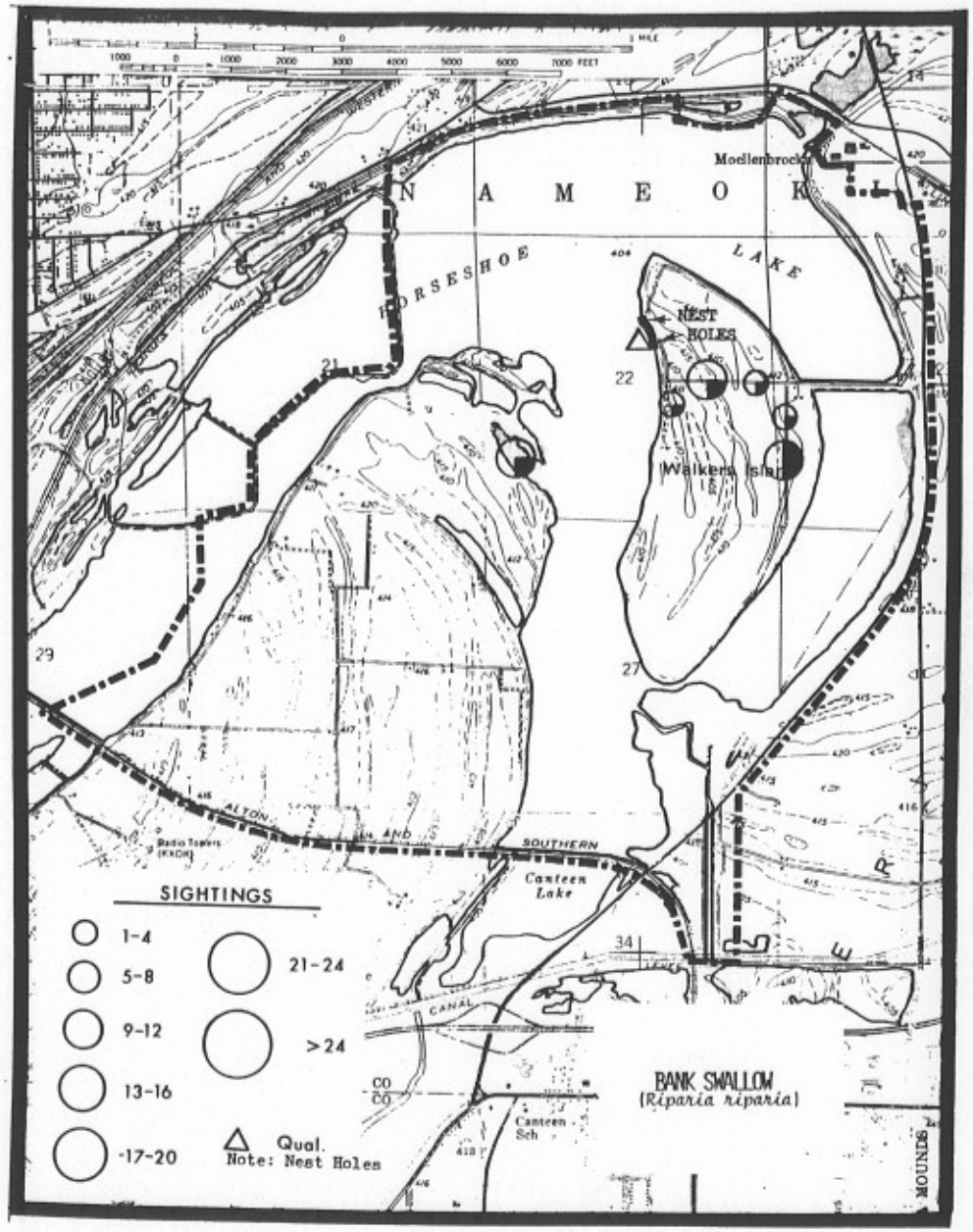

N A M E O K
HORSESHOE LAKE
Moellenbrock
Walkers Island
Canteen Lake
ALTON AND SOUTHERN
CANAL
Radio Towers (KXOK)
Canteen Sch
MOUNDS
SIGHTINGS
1-4
5-8
9-12
13-16
-17-20
21-24
>24
Qual.
GREAT CRESTED FLYCATCHER
(Myiarchus crinitus)

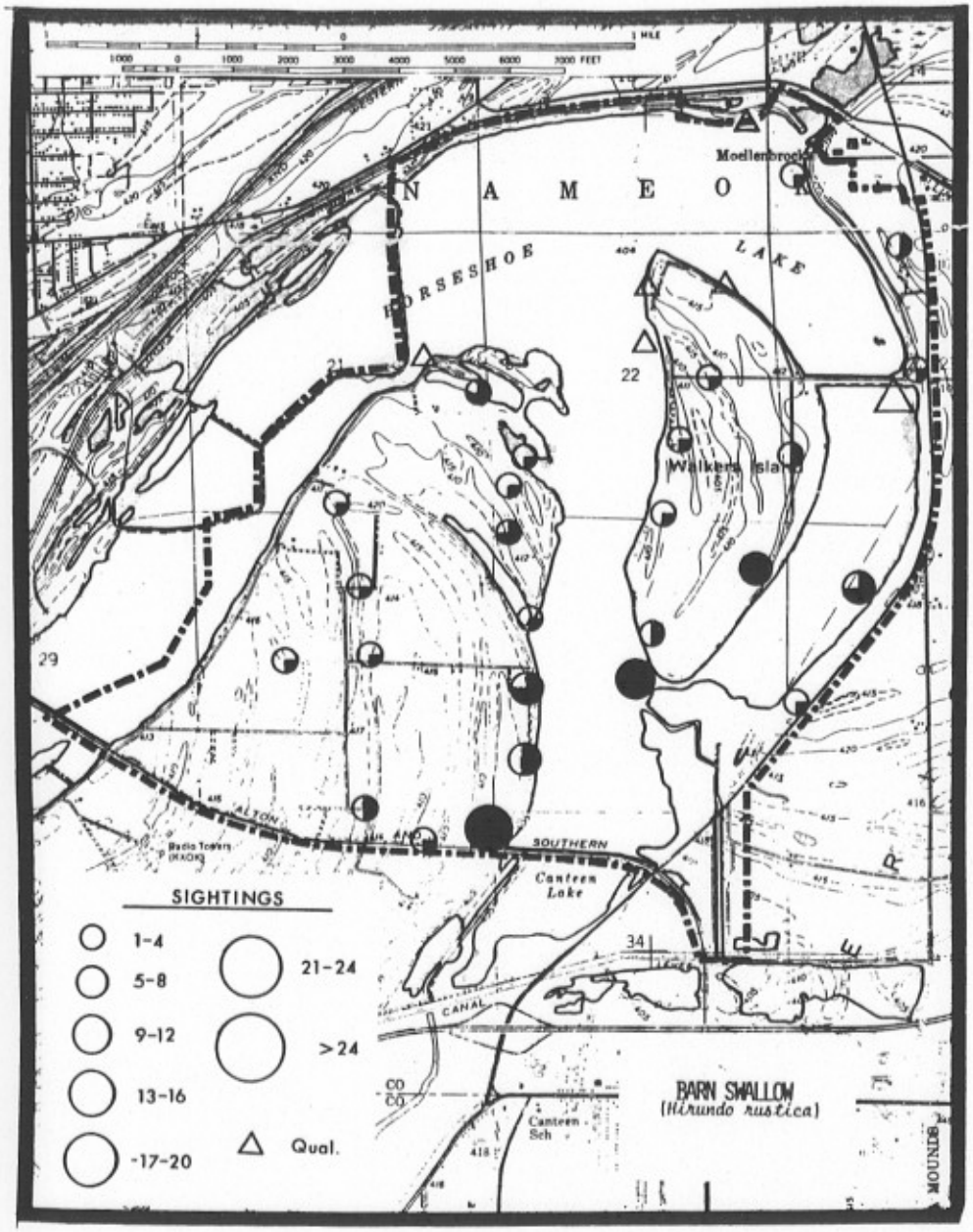

N A M E O K
HORSESHOE LAKE
Moellenbrock
24 May
Walkers Island
22 May
Canteen Lake
ALTON AND SOUTHERN
CANAL
Radio Towers (KXOK)
Canteen Sch
MOUNDS
SIGHTINGS
1-4
5-8
9-12
13-16
-17-20
21-24
>24
Qual.
EASTERN PHOEBE
(Sayornis phoebe)

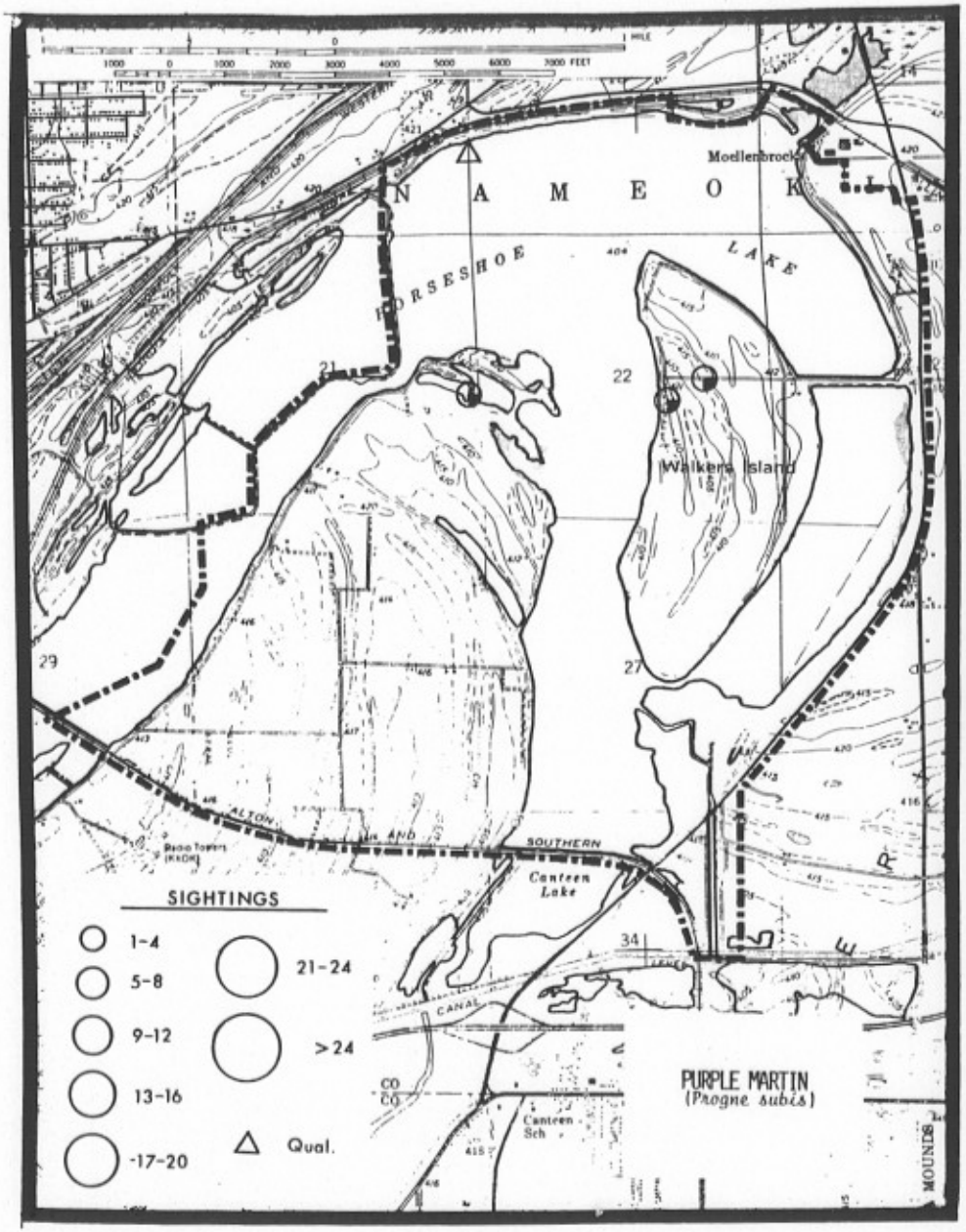

WILLOW FLYCATCHER
(Empidonax traillii)
SIGHTINGS
1-4
5-8
9-12
13-16
-17-20
21-24
>24
Qual.
(*) = Monsinger
N A M E O K
HORSESHOE LAKE
Moellenbrock
Walkers Island
Canteen Lake
ALTON AND SOUTHERN
CANAL
Canteen Sch
MOUNDS
Radio Towers (KAOK)

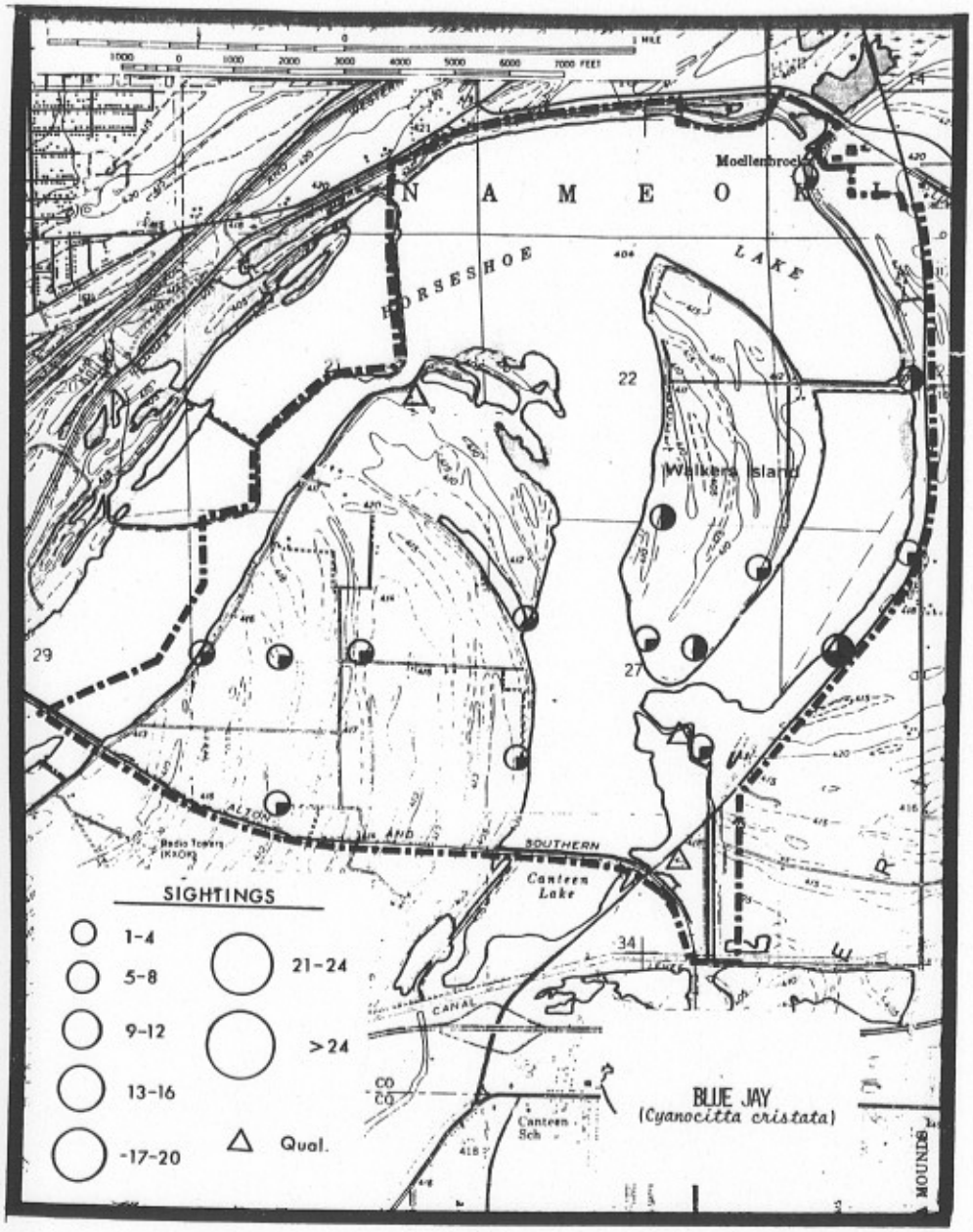

EASTERN WOOD PEWEE
(Contopus virens)
SIGHTINGS
1-4
5-8
9-12
13-16
-17-20
21-24
>24
Qual.
N A M E O K
HORSESHOE LAKE
Moellenbrock
Walkers Island
Canteen Lake
ALTON AND SOUTHERN
CANAL
Canteen Sch
MOUNDS
Radio Towers (KAOK)

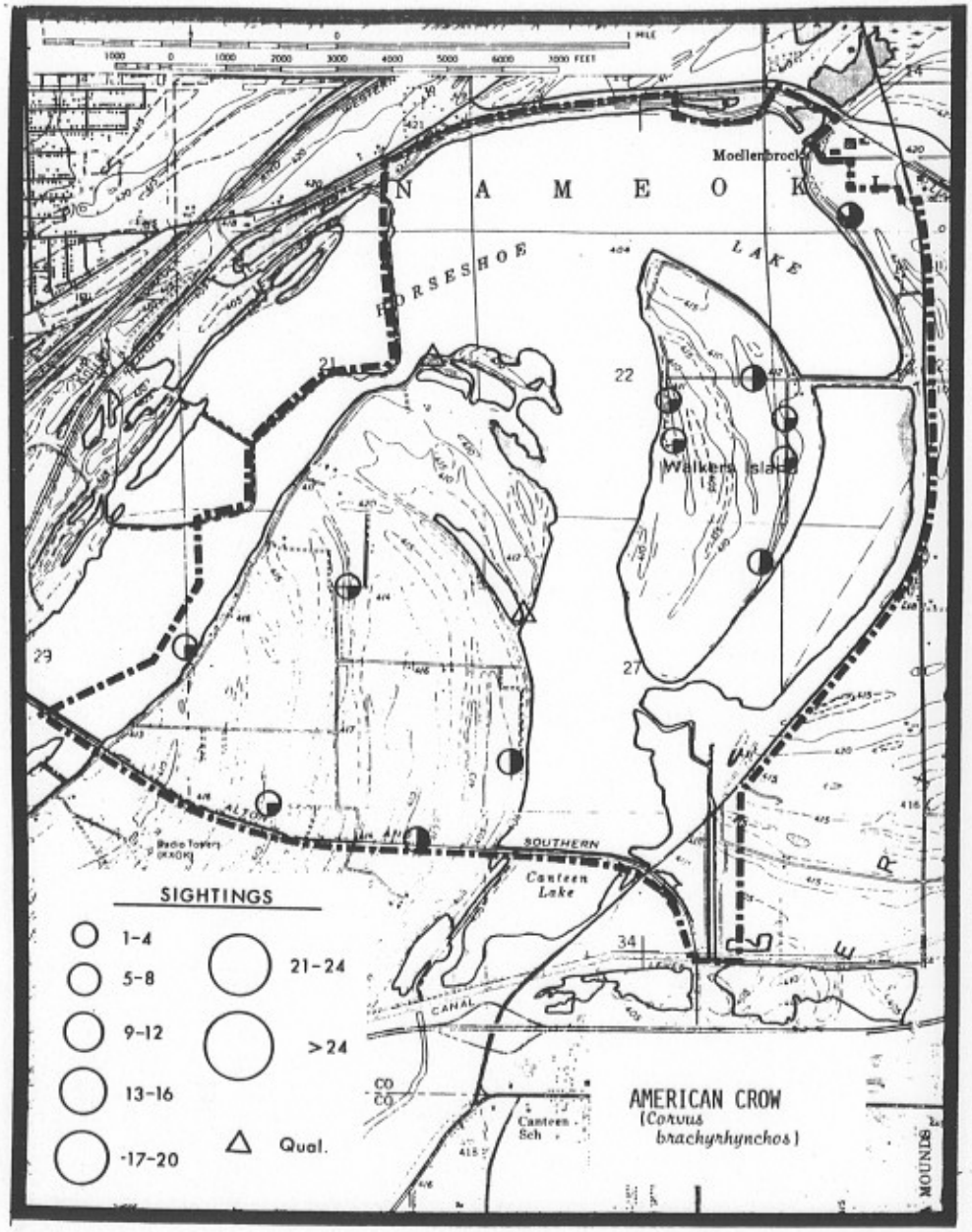

N A M E O K
HORSESHOE LAKE
Moellenbrock
Walkers Island
ALTON AND SOUTHERN
Canteen Lake
CANAL
Canteen Sch
Radio Towers (KKOK)
SIGHTINGS
1-4
5-8
9-12
13-16
-17-20
21-24
>24
Qual.
HORNED LARK
(Eremophila alpestris)
SUNDOWN

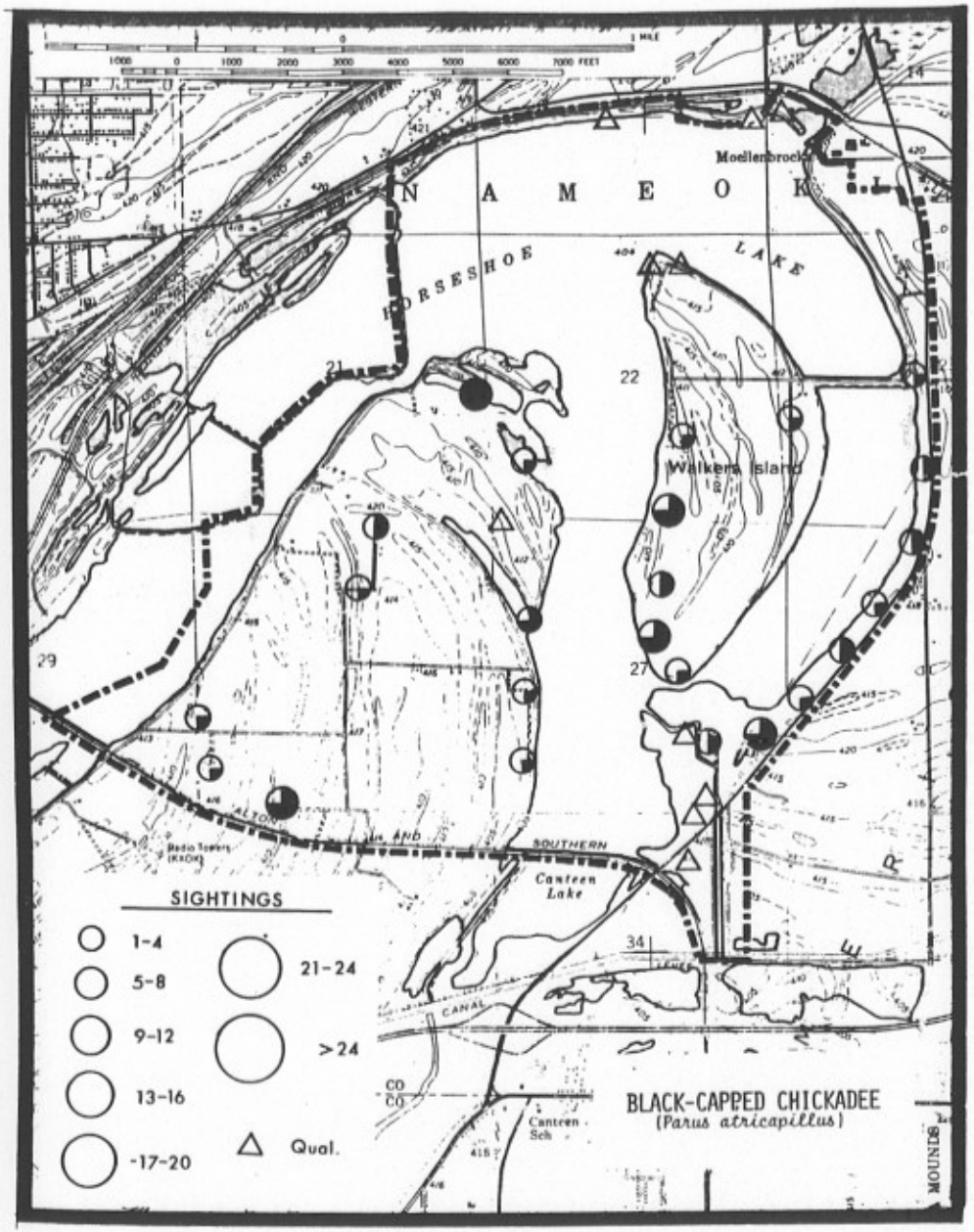

N A M E O K
HORSESHOE LAKE
Moellenbrock
NEST HOLES
Walkers Island
ALTON AND SOUTHERN
Canteen Lake
CANAL
Canteen Sch
Radio Towers (KKOK)
SIGHTINGS
1-4
5-8
9-12
13-16
-17-20
21-24
>24
Qual.
Note: Nest Holes
BANK SWALLOW
(Riparia riparia)
SUNDOWN

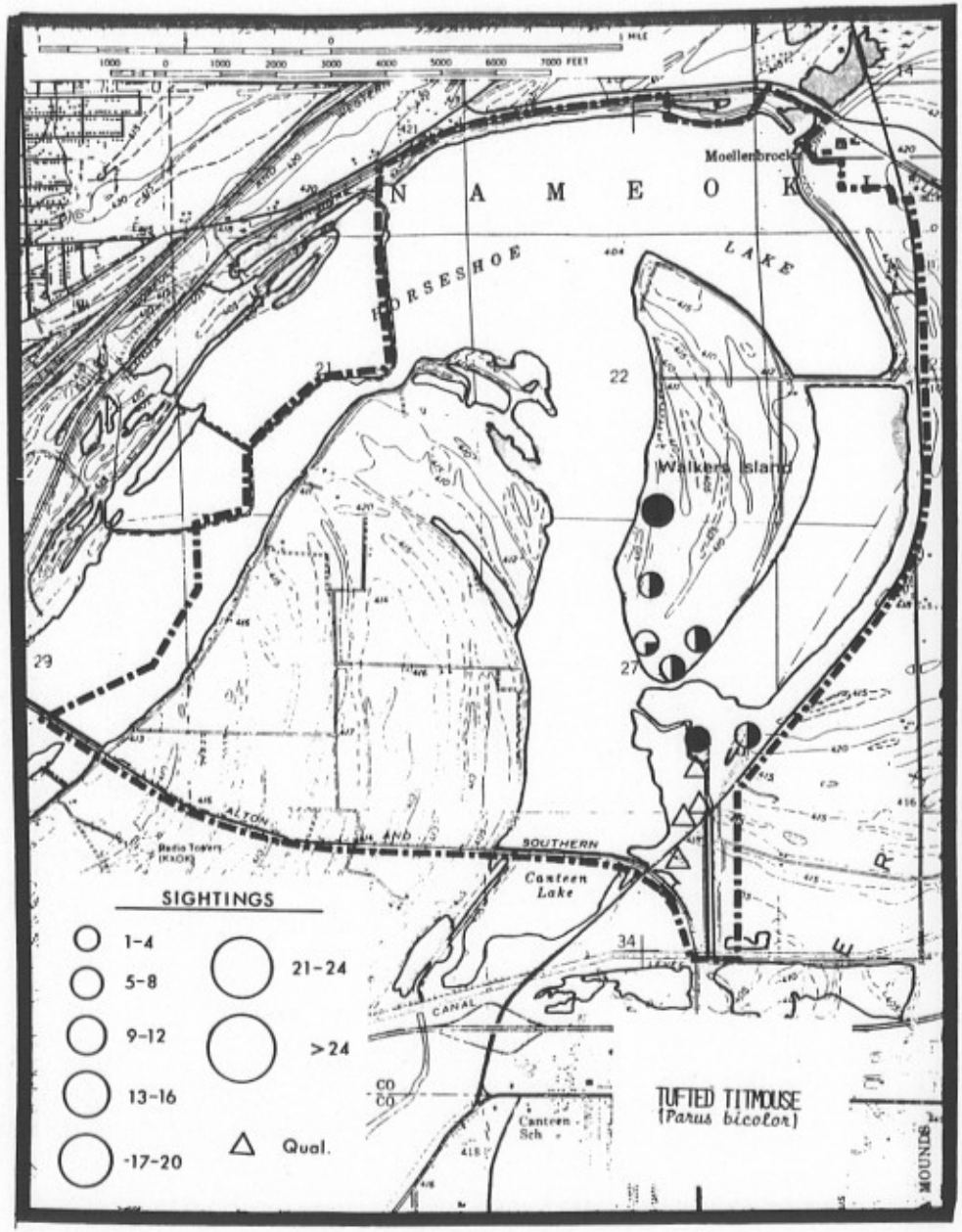

N A M E O K
HORSESHOE LAKE
Moellenbrock
Walkers Island
Canteen Lake
ALTON AND SOUTHERN
CANAL
Radio Towers (KAOK)
Canteen Sch
MOUNDS
SIGHTINGS
1-4
5-8
9-12
13-16
-17-20
21-24
>24
Qual.
BARN SWALLOW
(Hirundo rustica)

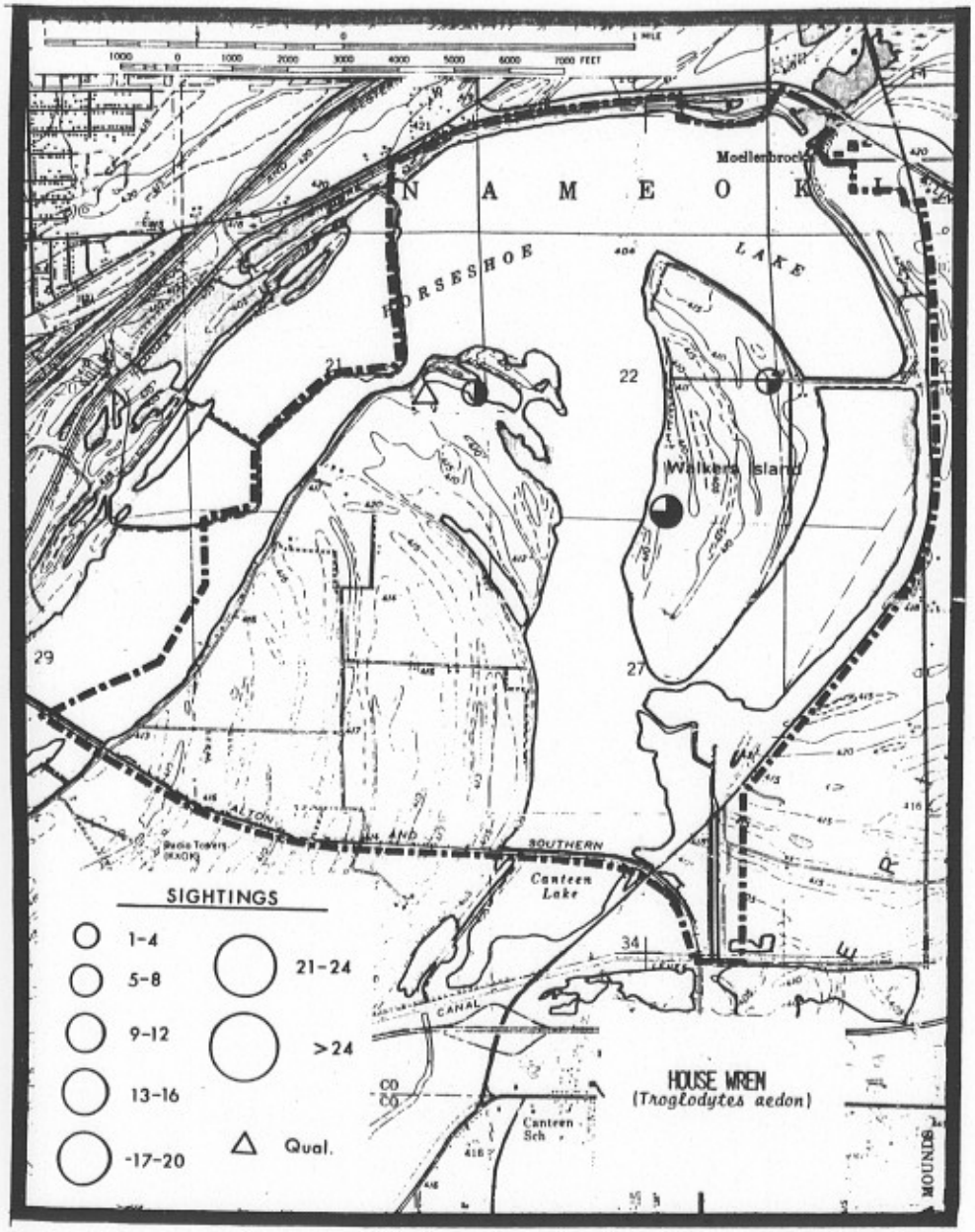

N A M E O K
HORSESHOE LAKE
Moellenbrock
Walkers Island
Canteen Lake
ALTON AND SOUTHERN
CANAL
Radio Towers (KAOK)
Canteen Sch
MOUNDS
SIGHTINGS
1-4
5-8
9-12
13-16
-17-20
21-24
>24
Qual.
PURPLE MARTIN
(Progne subis)

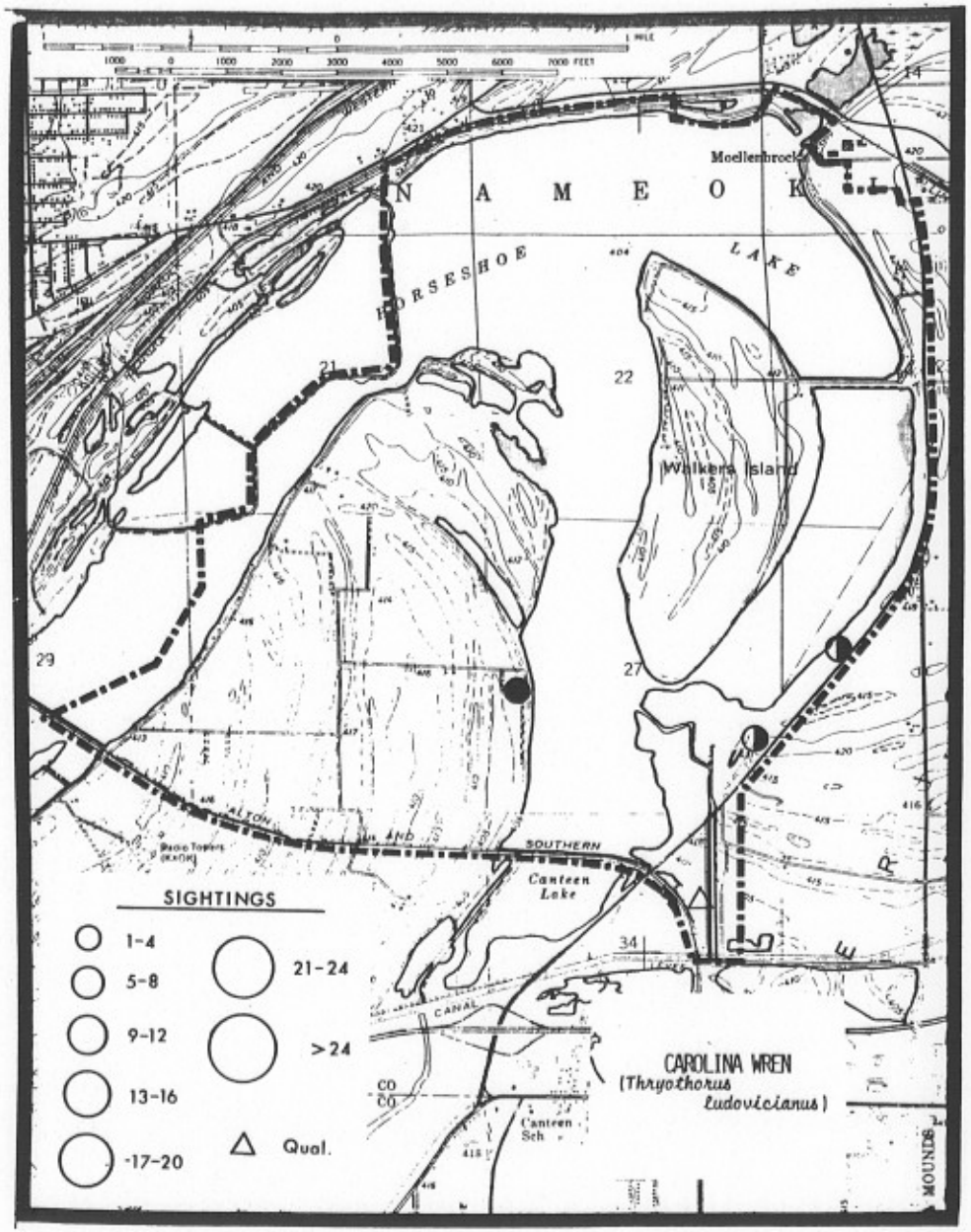

N A M E O K I
HORSESHOE LAKE
Moellenbrock
Walkers Island
ALTON AND SOUTHERN
Canteen Lake
CANAL
Canteen Sch
Radio Towers (KXOK)
SIGHTINGS
1-4
5-8
9-12
13-16
17-20
21-24
>24
Qual.
BLUE JAY
(Cyanocitta cristata)

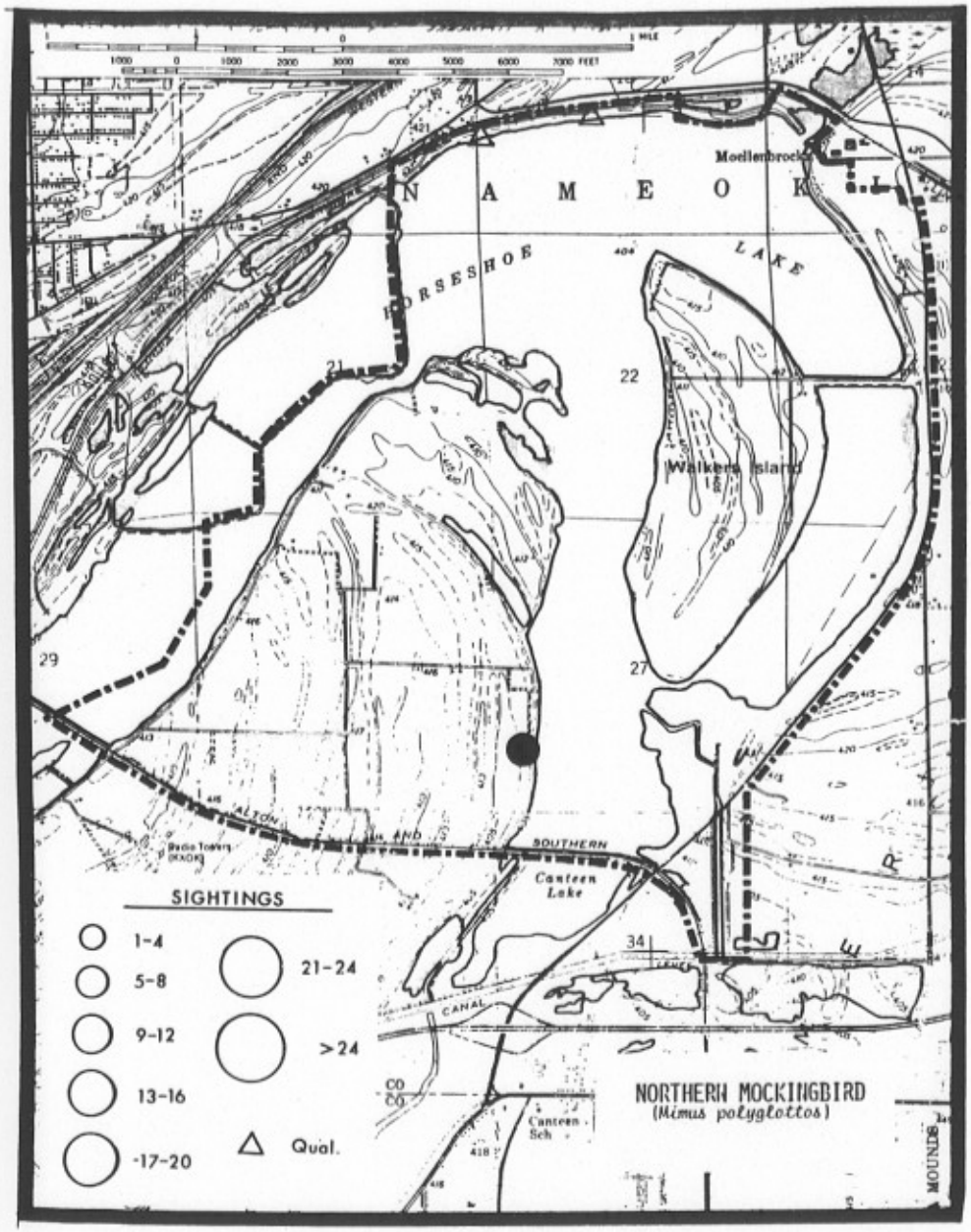

N A M E O K I
HORSESHOE LAKE
Moellenbrock
Walkers Island
ALTON AND SOUTHERN
Canteen Lake
CANAL
Canteen Sch
Radio Towers (KXOK)
SIGHTINGS
1-4
5-8
9-12
13-16
17-20
21-24
>24
Qual.
AMERICAN CROW
(Corvus brachyrhynchos)

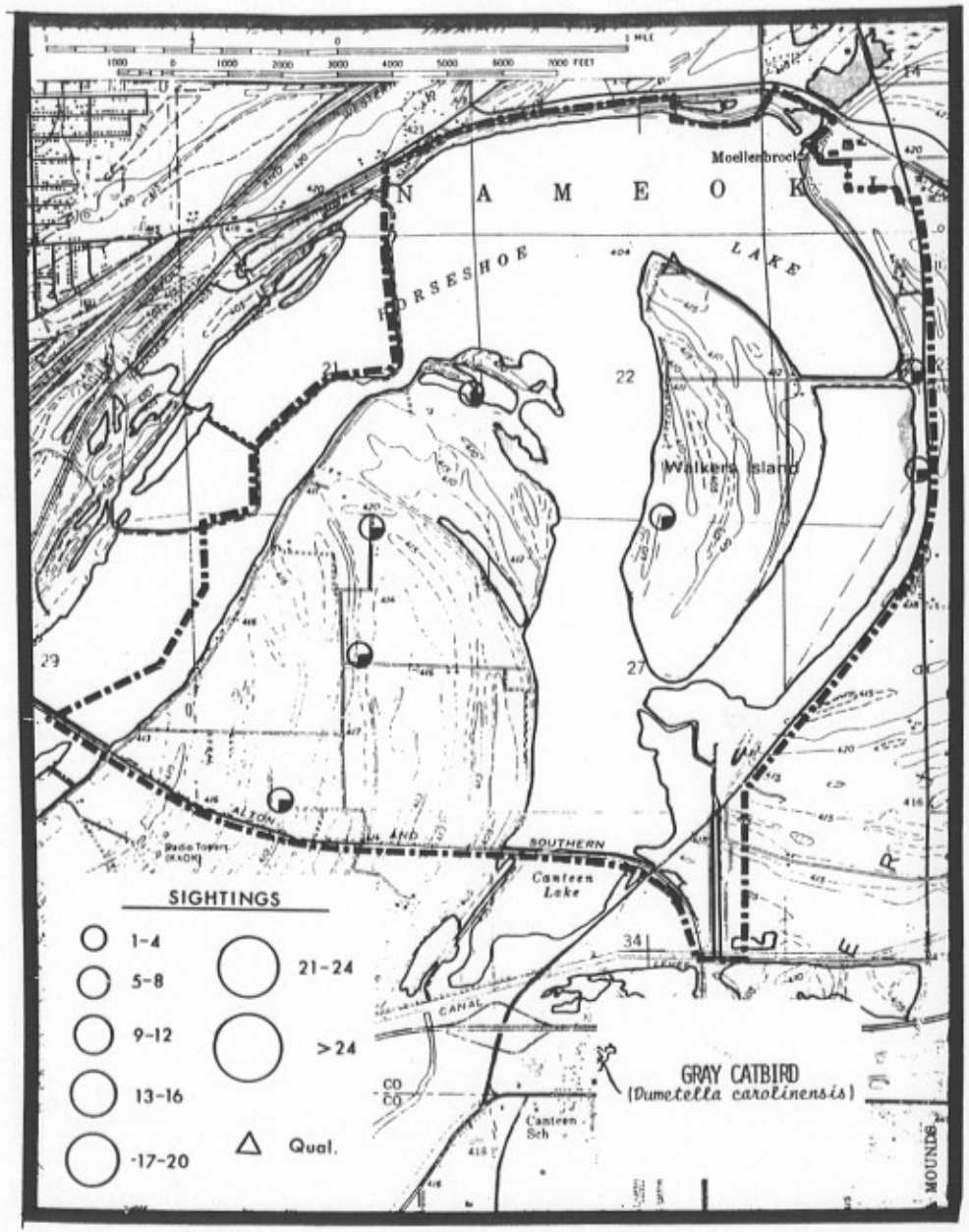

N A M E O K I
HORSESHOE LAKE
Moellenbrock
Walkers Island
Canteen Lake
ALTON AND SOUTHERN
CANAL
Radio Towers (KXOK)
Canteen Sch
MOUNDS
SIGHTINGS
1-4
5-8
9-12
13-16
-17-20
21-24
>24
Qual.
BLACK-CAPPED CHICKADEE
(Parus atricapillus)

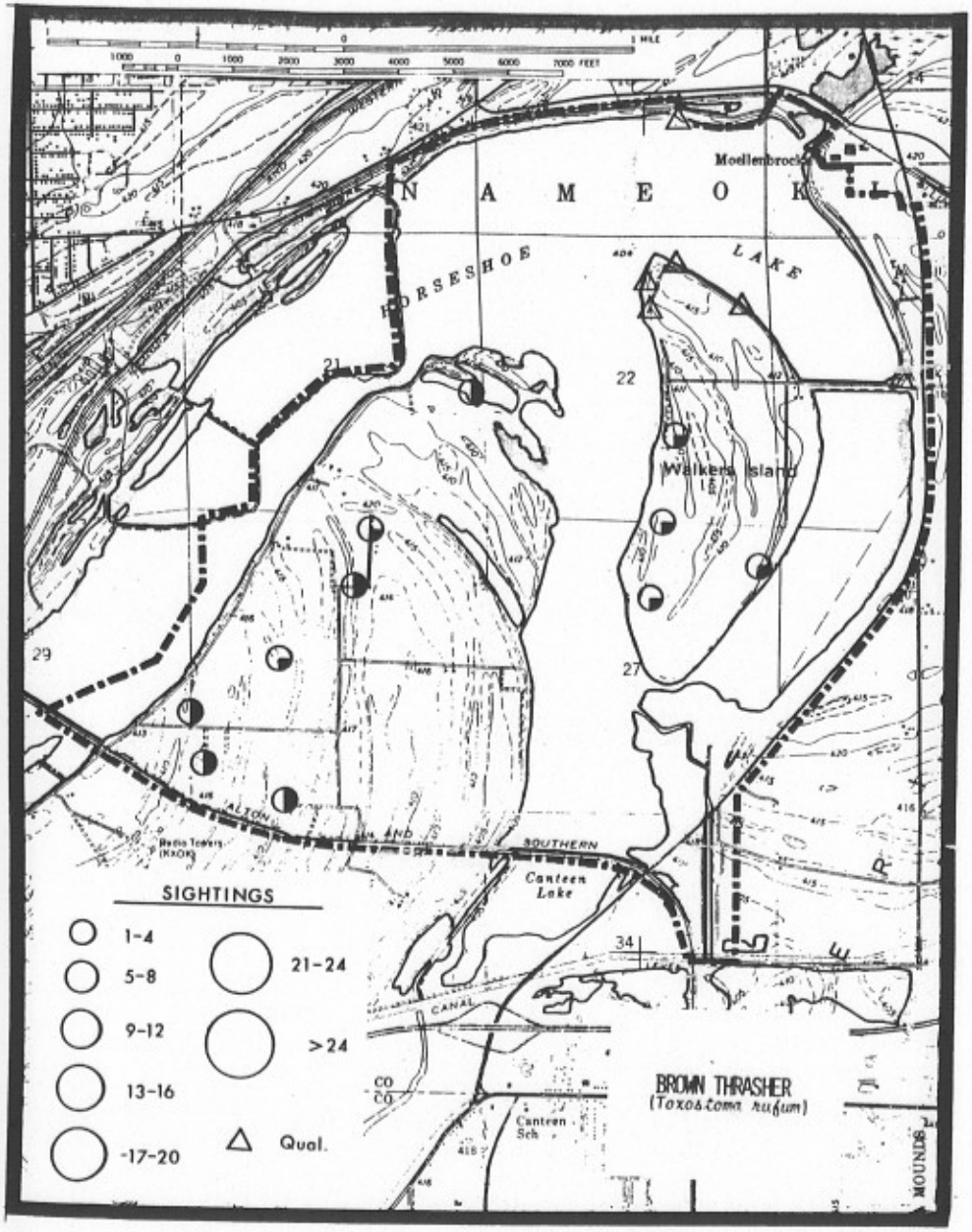

N A M E O K I
HORSESHOE LAKE
Moellenbrock
Walkers Island
Canteen Lake
ALTON AND SOUTHERN
CANAL
Radio Towers (KXOK)
Canteen Sch
MOUNDS
SIGHTINGS
1-4
5-8
9-12
13-16
-17-20
21-24
>24
Qual.
TUFTED TITMOUSE
(Parus bicolor)

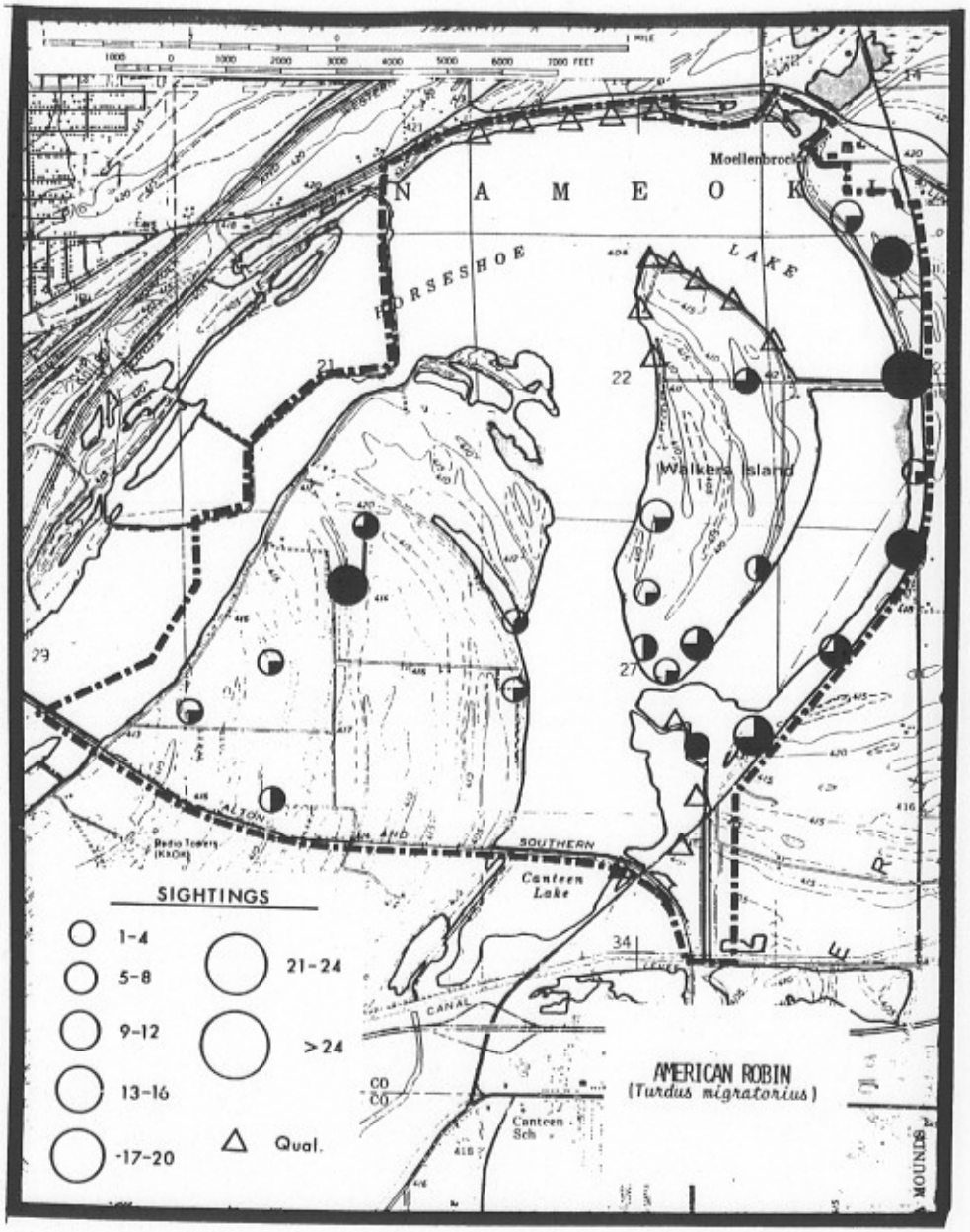

N A M E O K
HORSESHOE LAKE
Moellenbrock
Walkers Island
Canteen Lake
ALTON AND SOUTHERN
CANAL
Canteen Sch
MOUNDS
SIGHTINGS
1-4
5-8
9-12
13-16
-17-20
21-24
>24
Qual.
HOUSE WREN
(Troglodytes aedon)

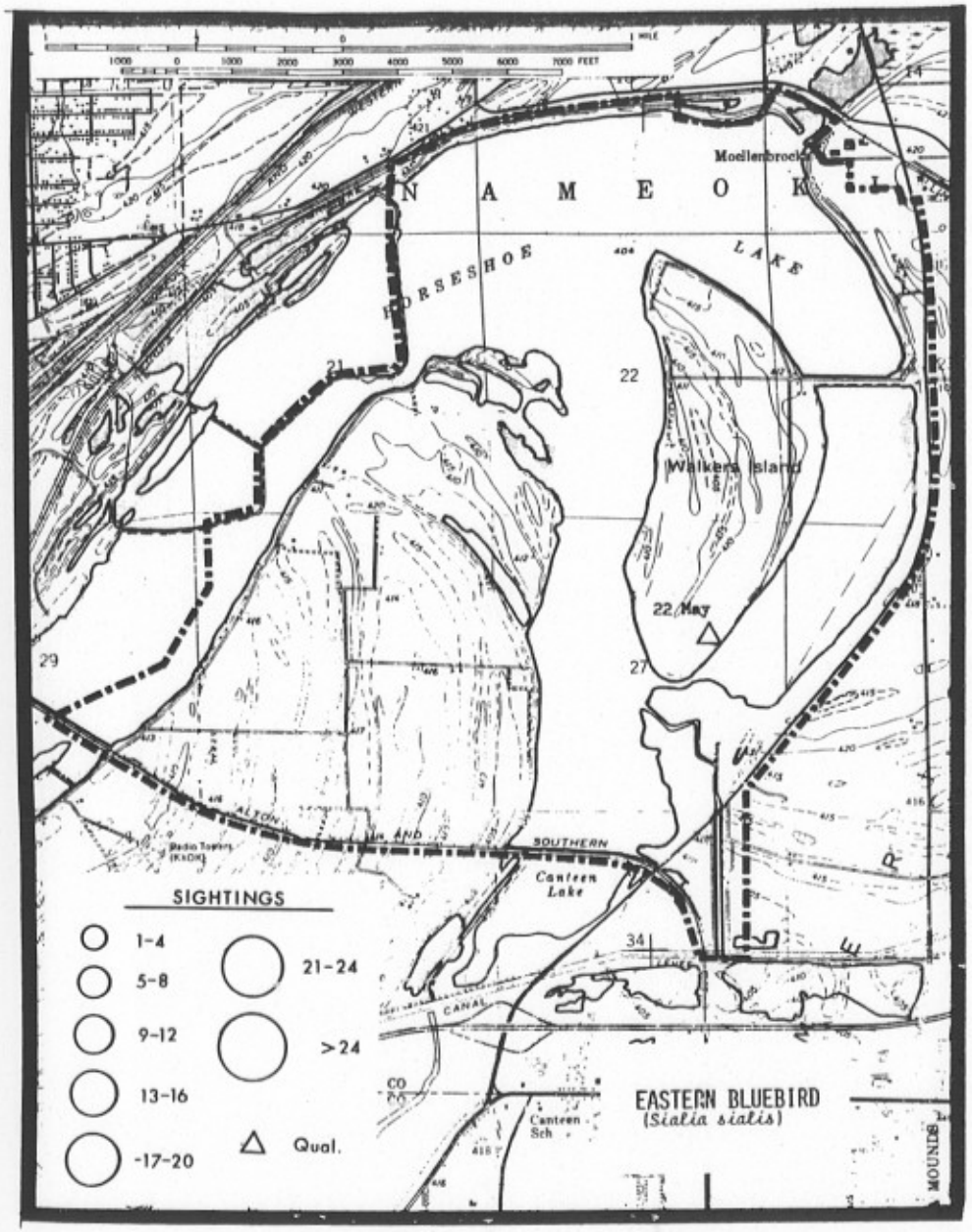

N A M E O K
HORSESHOE LAKE
Moellenbrock
Walkers Island
Canteen Lake
ALTON AND SOUTHERN
CANAL
Canteen Sch
MOUNDS
SIGHTINGS
1-4
5-8
9-12
13-16
-17-20
21-24
>24
Qual.
CAROLINA WREN
(Thryothorus ludovicianus)

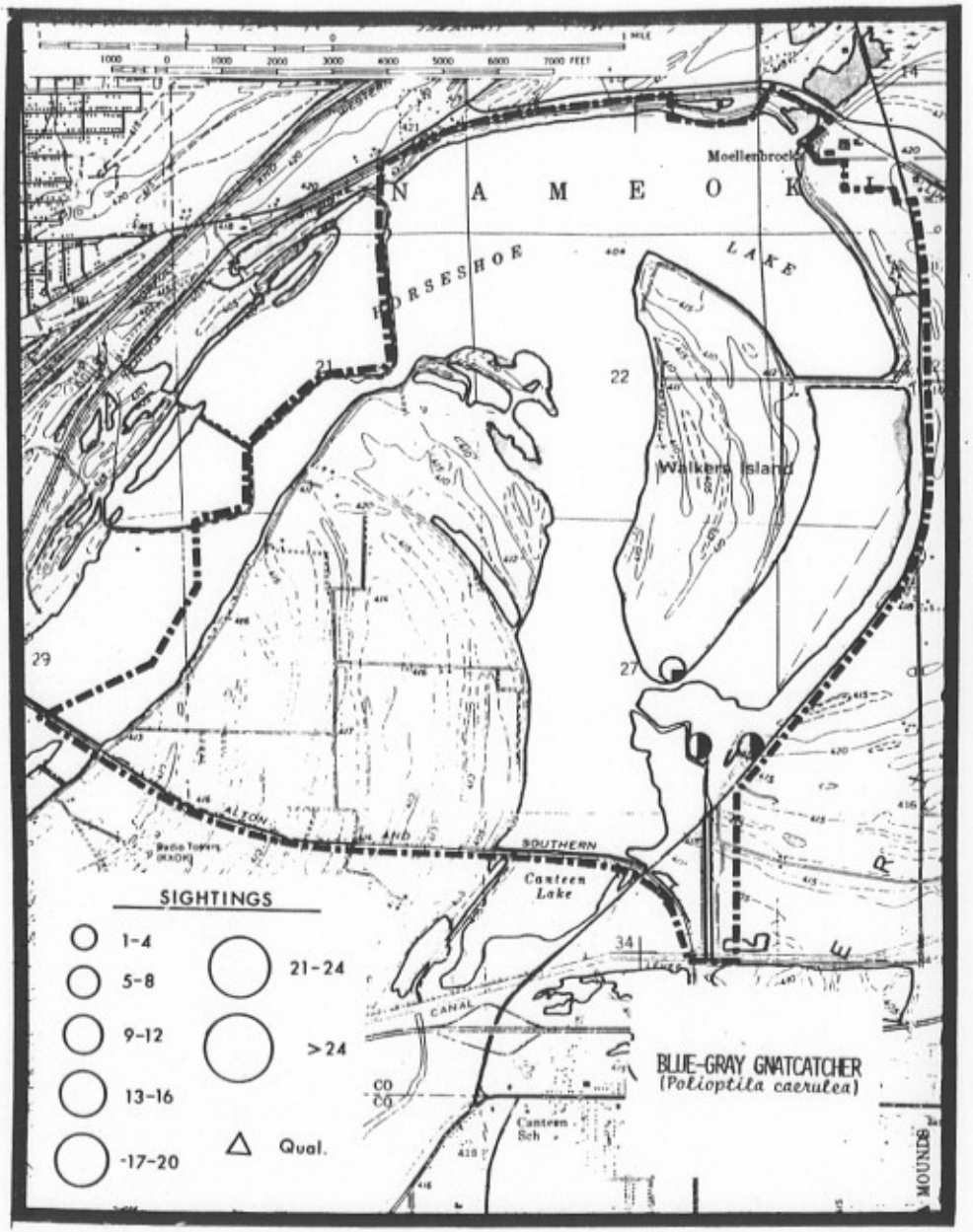

NAMEOKI
HORSESHOE LAKE
Moellenbrock
Walkers Island
ALTON AND SOUTHERN
Canteen Lake
CANAL
Canteen Sch
MOUNDS
SIGHTINGS
1-4
5-8
9-12
13-16
17-20
21-24
>24
Qual.
NORTHERN MOCKINGBIRD
(Mimus polyglottos)

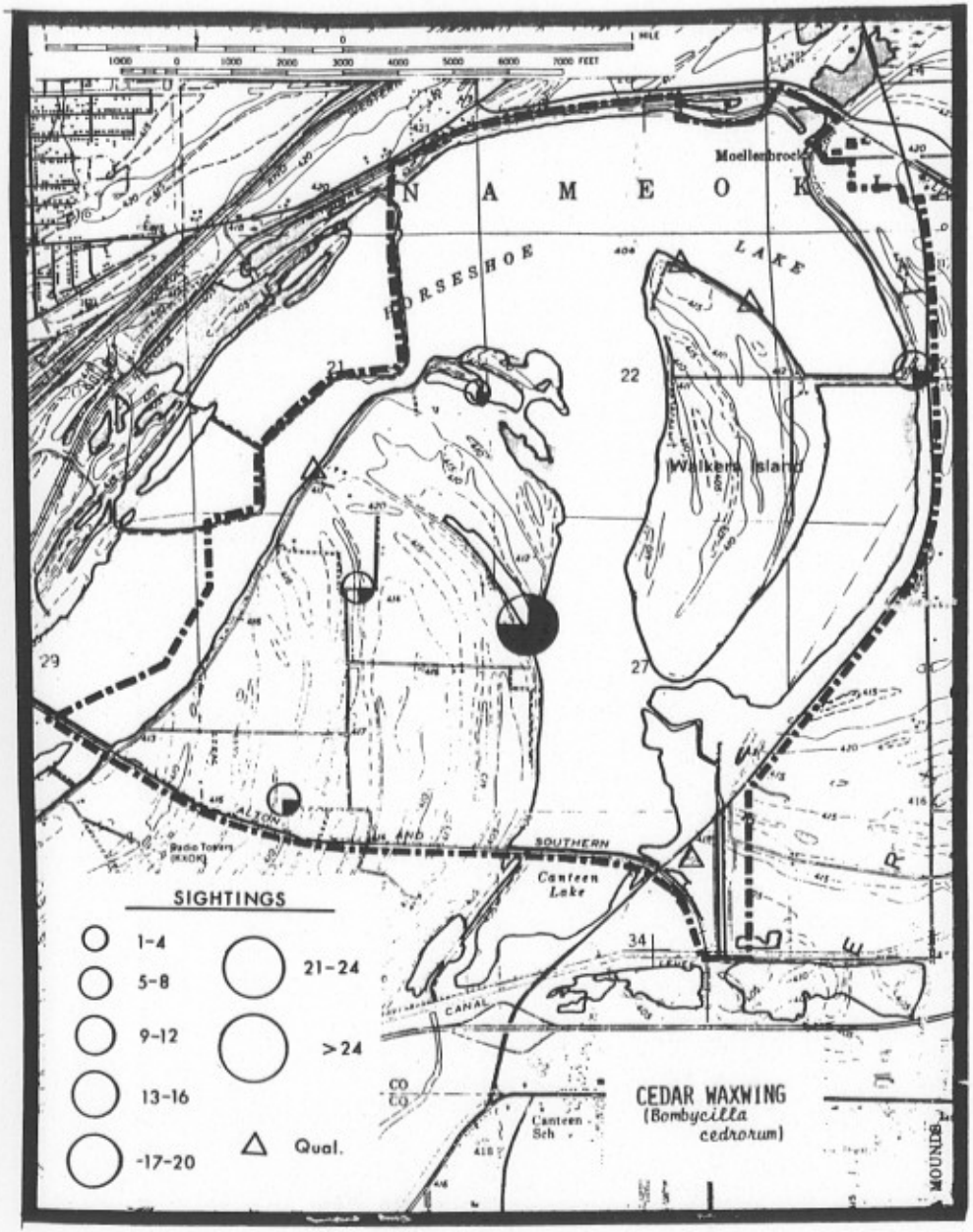

NAMEOKI
HORSESHOE LAKE
Moellenbrock
Walkers Island
ALTON AND SOUTHERN
Canteen Lake
CANAL
Canteen Sch
MOUNDS
SIGHTINGS
1-4
5-8
9-12
13-16
17-20
21-24
>24
Qual.
GRAY CATBIRD
(Dumetella carolinensis)

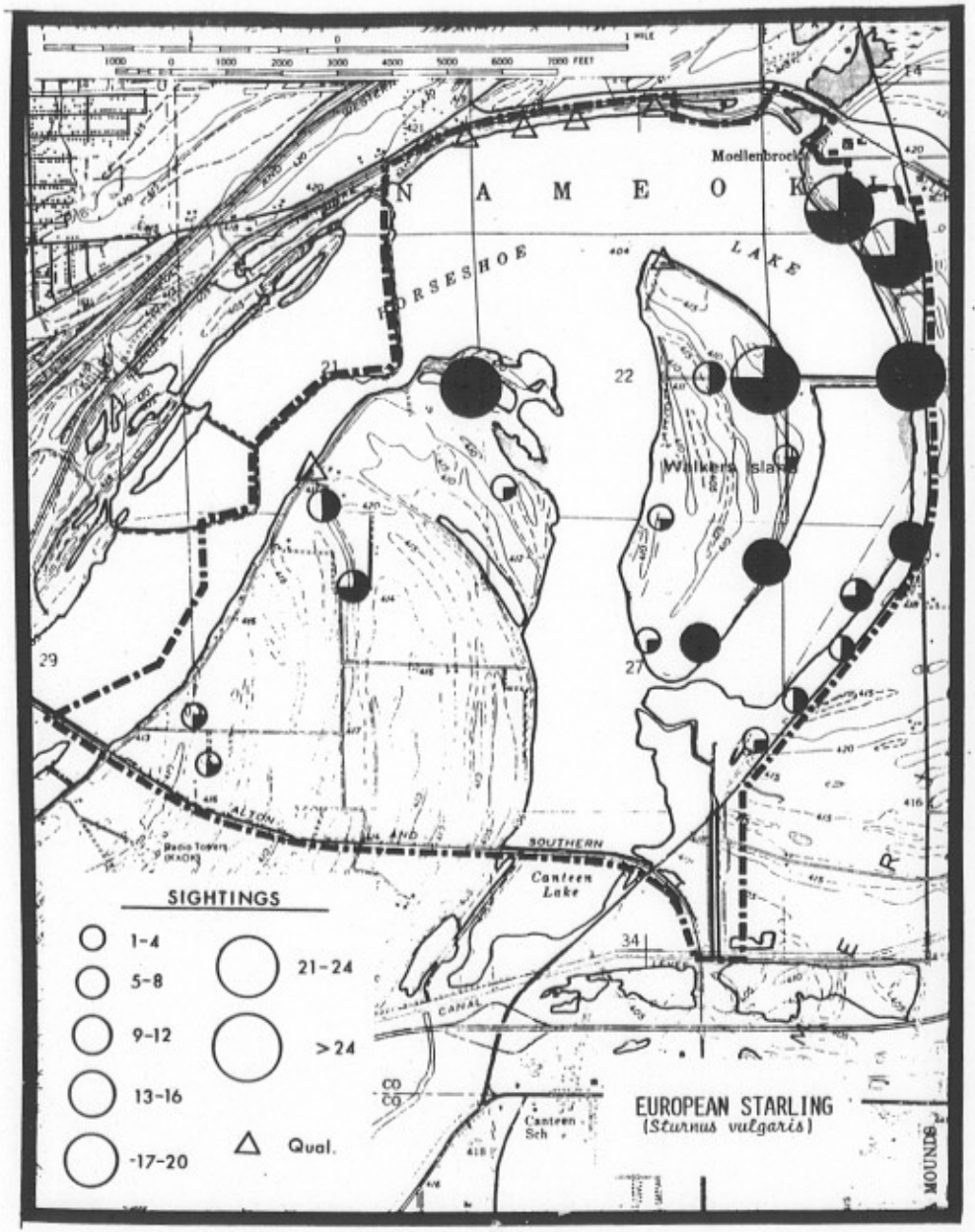

N A M E O K
HORSESHOE LAKE
Moellenbrock
Walkers Island
Canteen Lake
ALTON AND SOUTHERN
CANAL
Canteen Sch
Radio Towers (KXOK)
SIGHTINGS
1-4
5-8
9-12
13-16
-17-20
21-24
>24
Qual.
BROWN THRASHER
(Toxostoma rufum)
MOUNDS

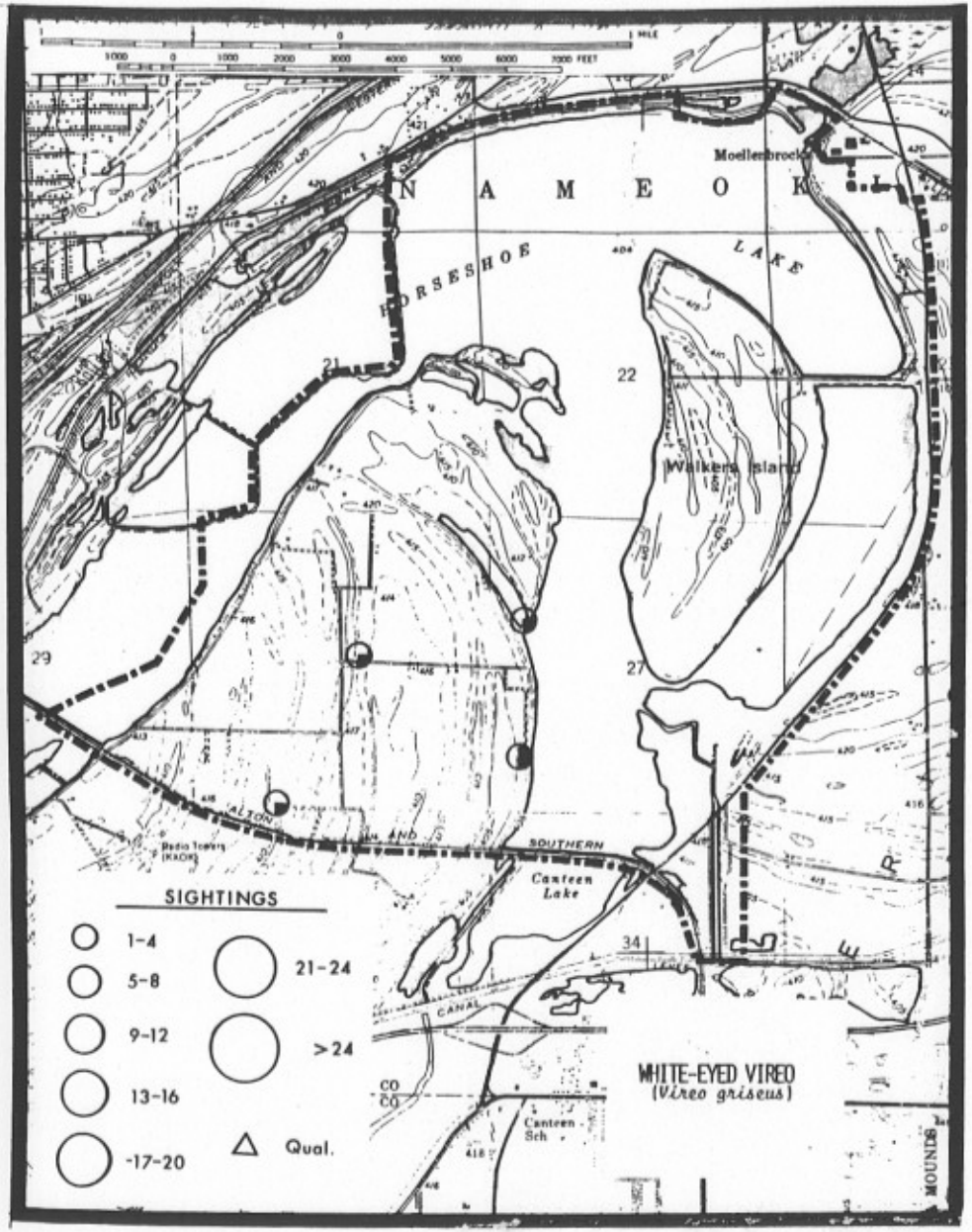

N A M E O K
HORSESHOE LAKE
Moellenbrock
Walkers Island
Canteen Lake
ALTON AND SOUTHERN
CANAL
Canteen Sch
Radio Towers (KXOK)
SIGHTINGS
1-4
5-8
9-12
13-16
-17-20
21-24
>24
Qual.
AMERICAN ROBIN
(Turdus migratorius)
MOUNDS

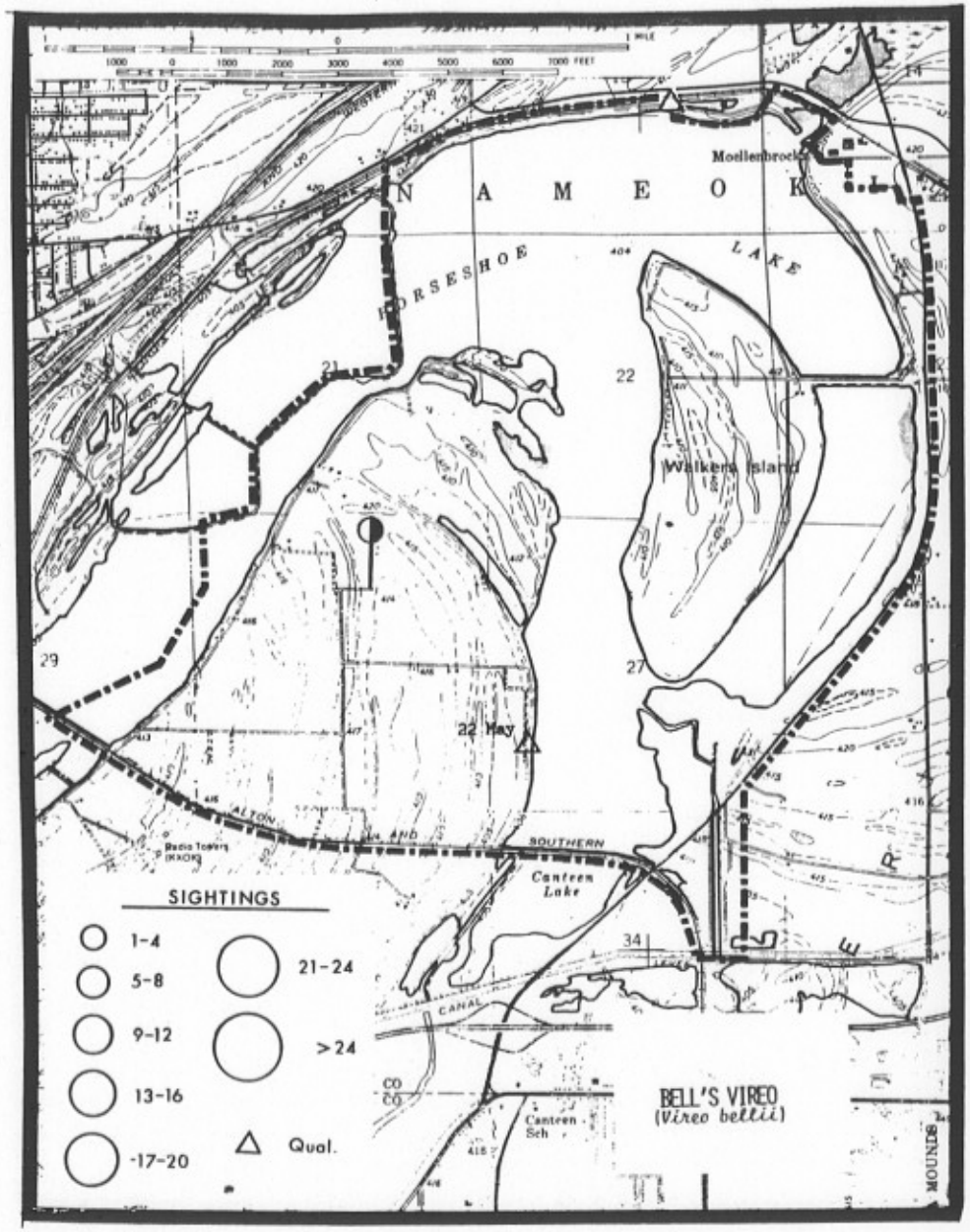

N A M E O K
HORSESHOE LAKE
Moellenbrock
Walkers Island
22 May
Canteen Lake
ALTON AND SOUTHERN
CANAL
Canteen Sch
SIGHTINGS
1-4
5-8
9-12
13-16
-17-20
21-24
>24
Qual.
EASTERN BLUEBIRD
(Sialia sialis)

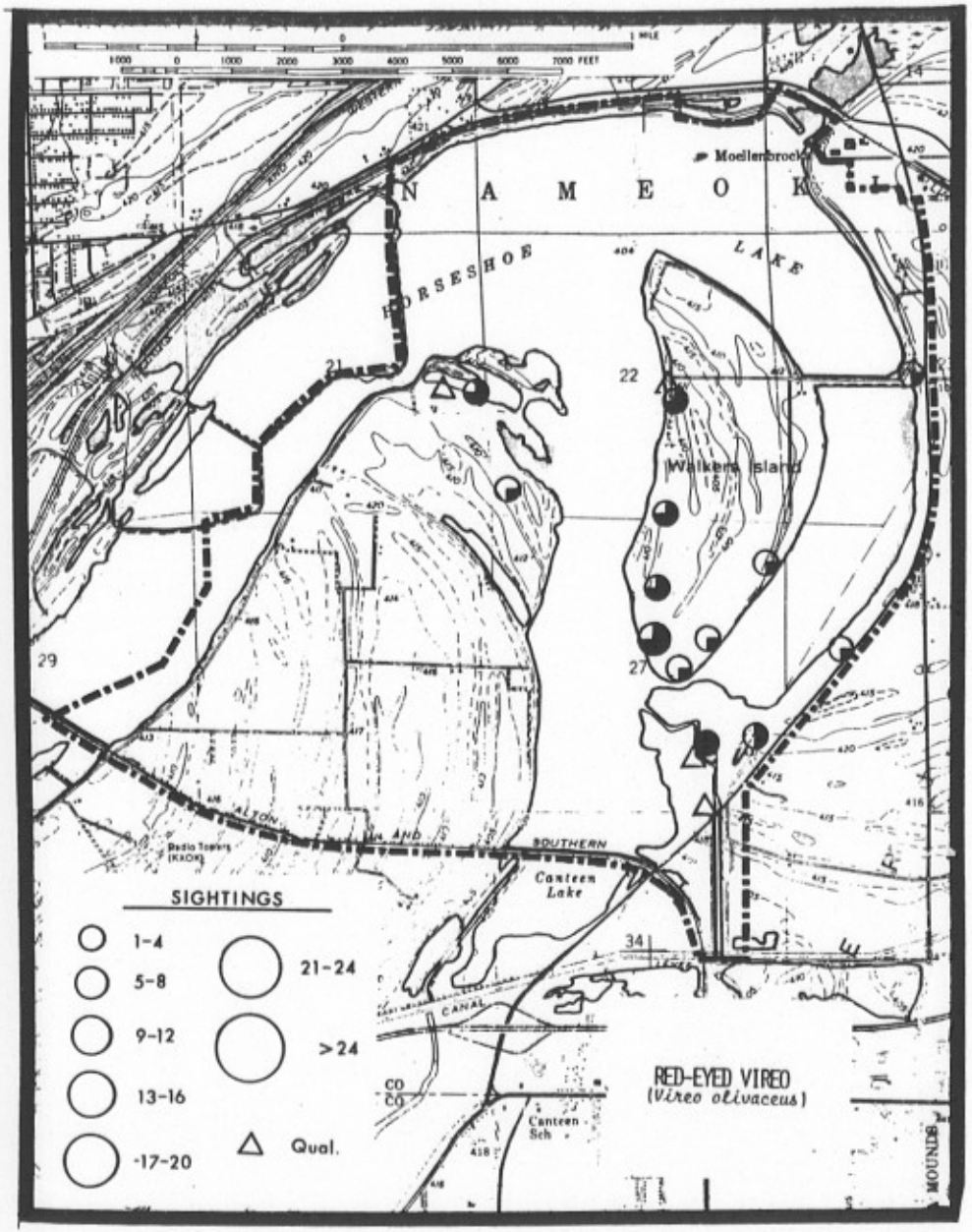

N A M E O K
HORSESHOE LAKE
Moellenbrock
Walkers Island
Canteen Lake
ALTON AND SOUTHERN
CANAL
Canteen Sch
SIGHTINGS
1-4
5-8
9-12
13-16
-17-20
21-24
>24
Qual.
BLUE-GRAY GNATCATCHER
(Polioptila caerulea)

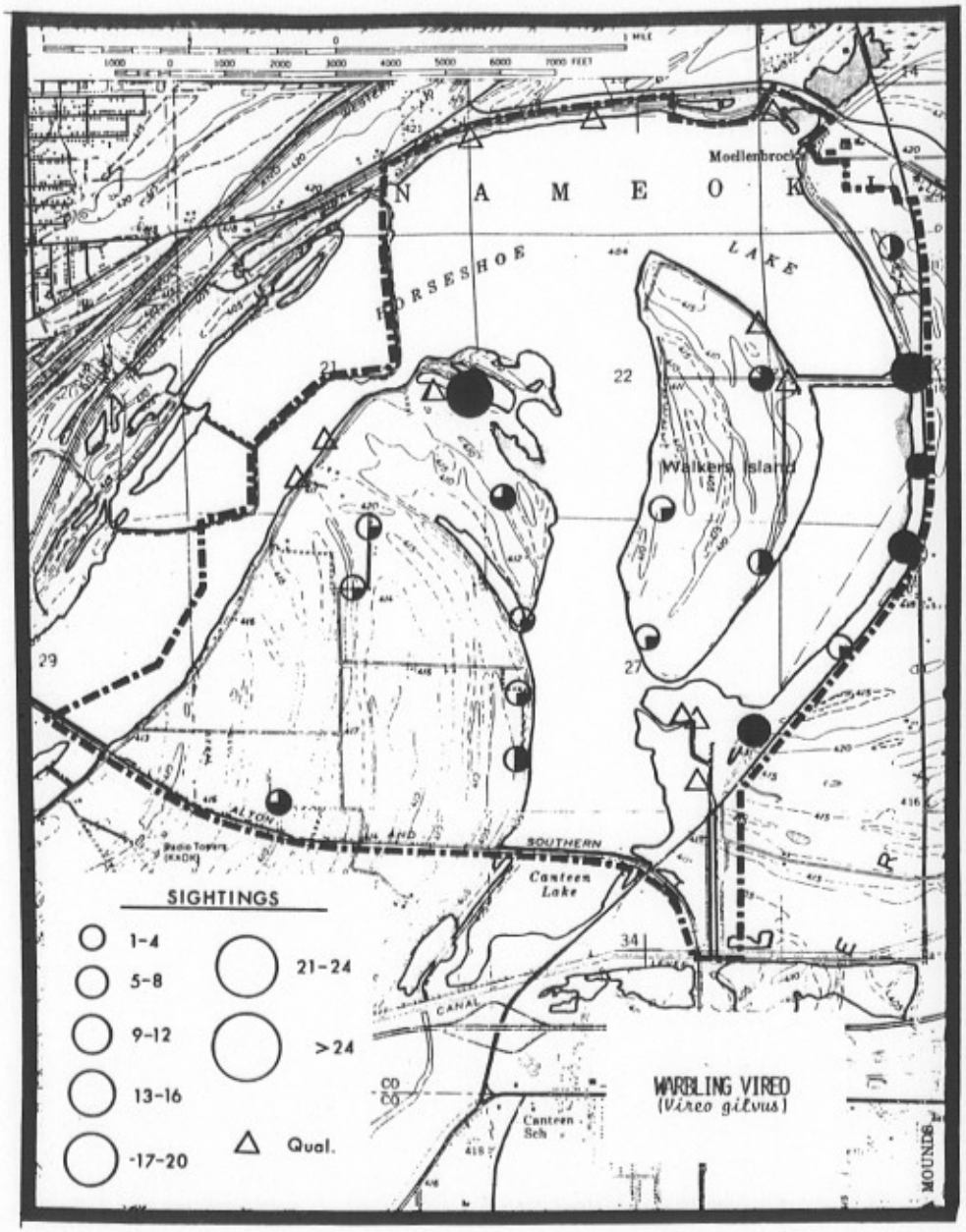

N A M E O K
HORSESHOE LAKE
Moellenbrock
Walkers Island
Canteen Lake
ALTON AND SOUTHERN
CANAL
Radio Towers (KXOK)
Canteen Sch
MOUNDS
SIGHTINGS
1-4
5-8
9-12
13-16
-17-20
21-24
>24
Qual.
CEDAR WAXWING
(Bombycilla cedrorum)

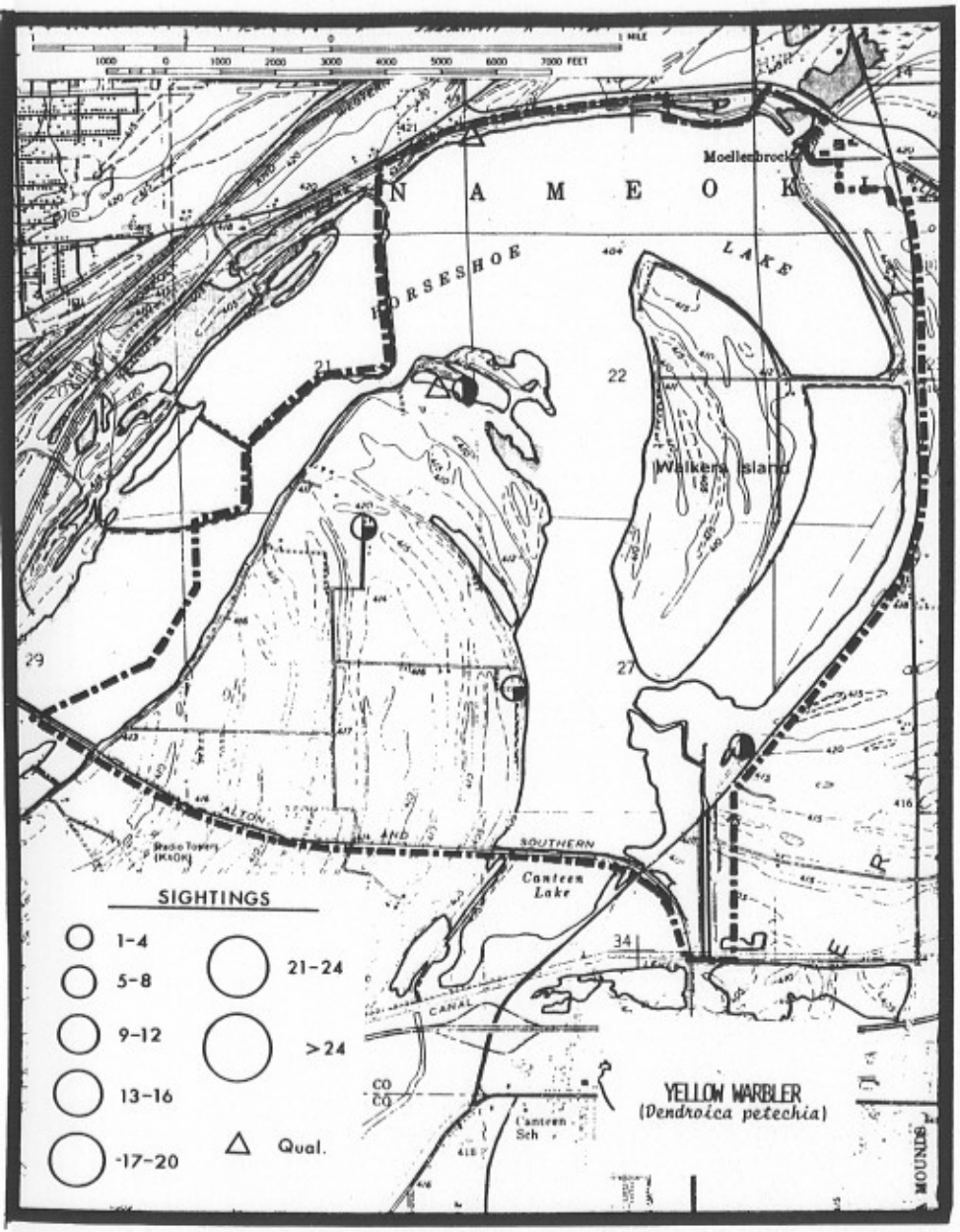

N A M E O K
HORSESHOE LAKE
Moellenbrock
Walkers Island
Canteen Lake
ALTON AND SOUTHERN
CANAL
Radio Towers (KXOK)
Canteen Sch
MOUNDS
SIGHTINGS
1-4
5-8
9-12
13-16
-17-20
21-24
>24
Qual.
EUROPEAN STARLING
(Sturnus vulgaris)

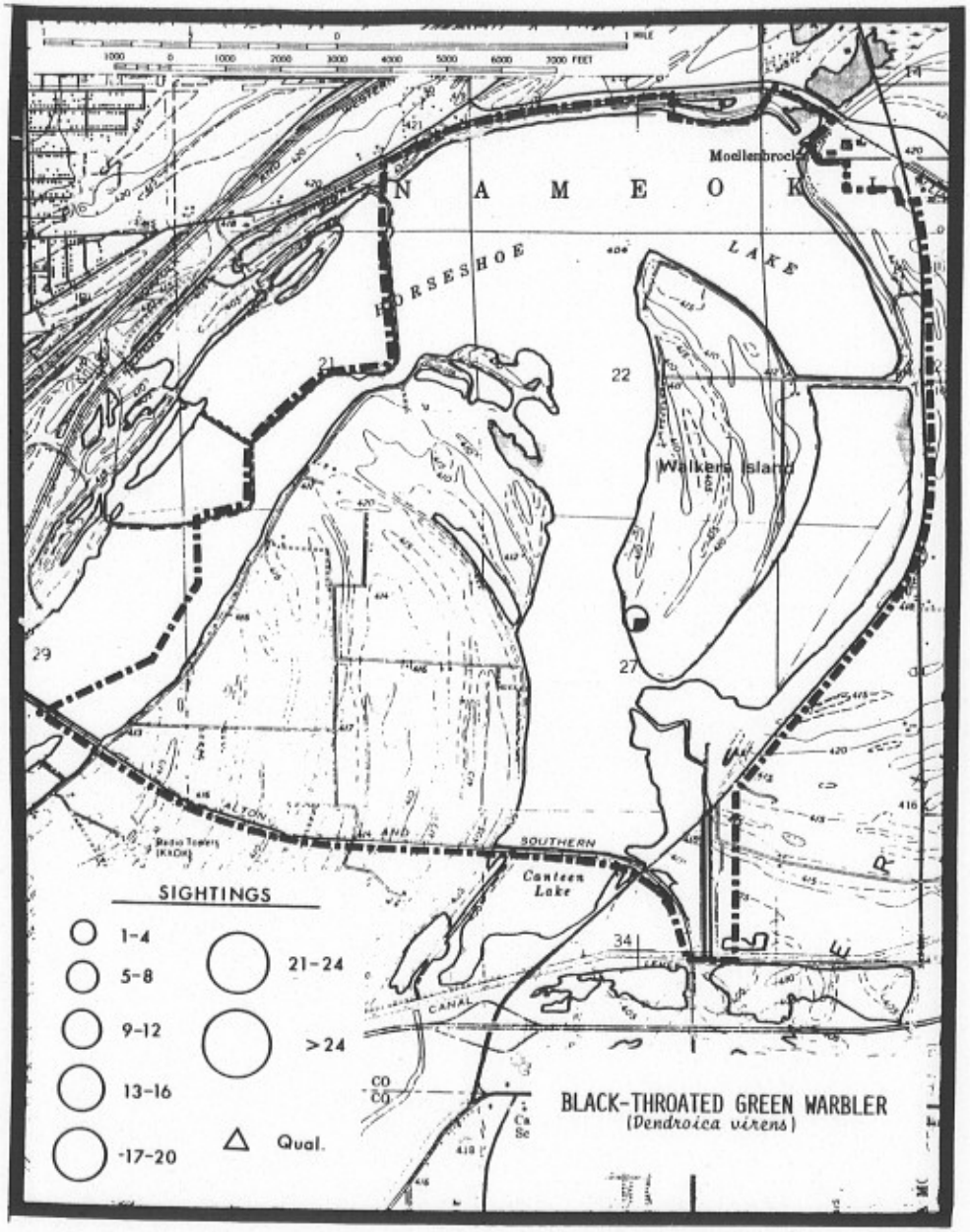

N A M E O K
HORSESHOE LAKE
Moellenbrock
Walkers Island
Canteen Lake
ALTON AND SOUTHERN
CANAL
Radio Towers (KAOK)
Canteen Sch
MOUNDS
SIGHTINGS
1-4
5-8
9-12
13-16
-17-20
21-24
>24
Qual.
WHITE-EYED VIREO
(Vireo griseus)

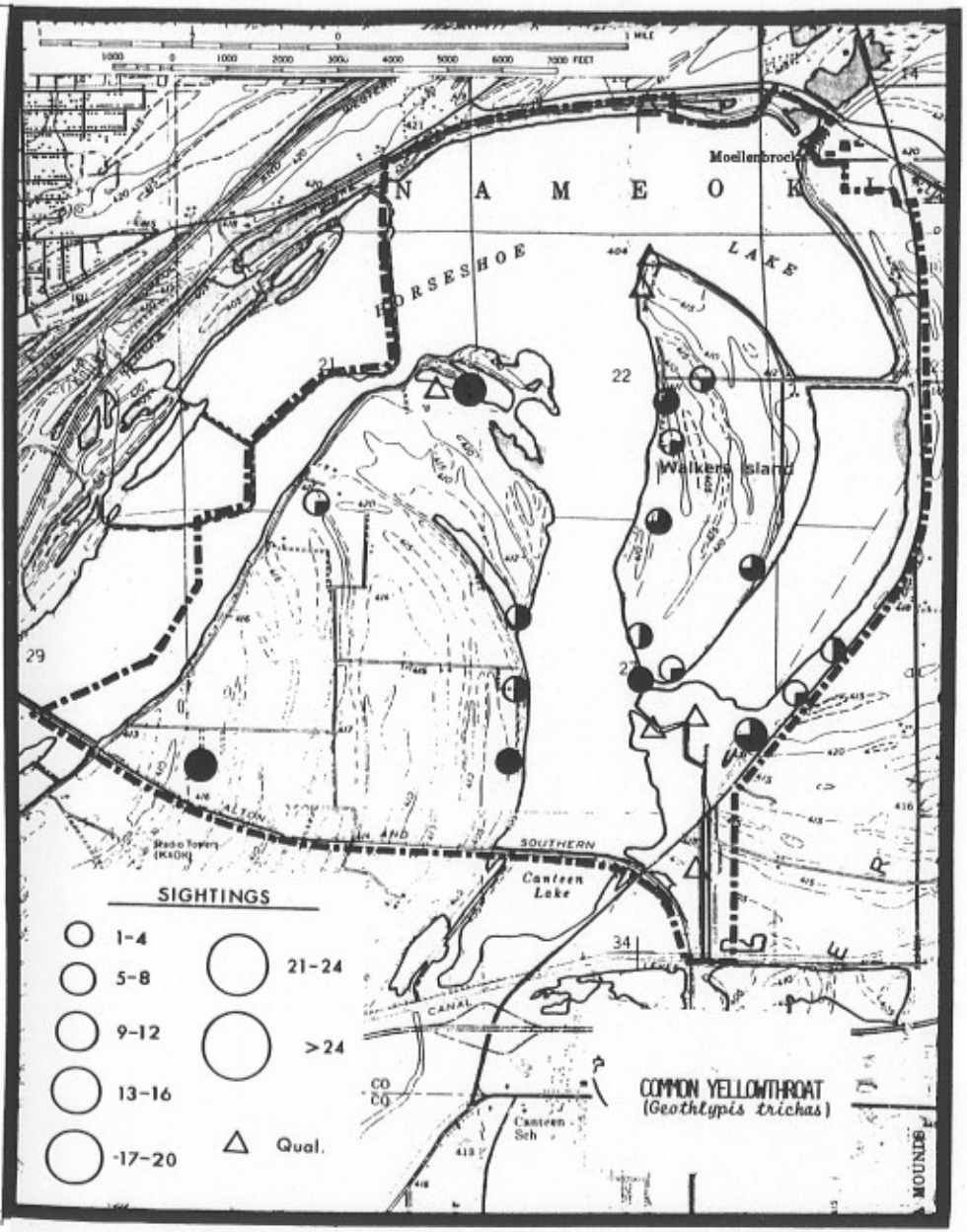

N A M E O K
HORSESHOE LAKE
Moellenbrock
Walkers Island
22 May
Canteen Lake
ALTON AND SOUTHERN
CANAL
Radio Towers (KAOK)
Canteen Sch
MOUNDS
SIGHTINGS
1-4
5-8
9-12
13-16
-17-20
21-24
>24
Qual.
BELL'S VIREO
(Vireo bellii)

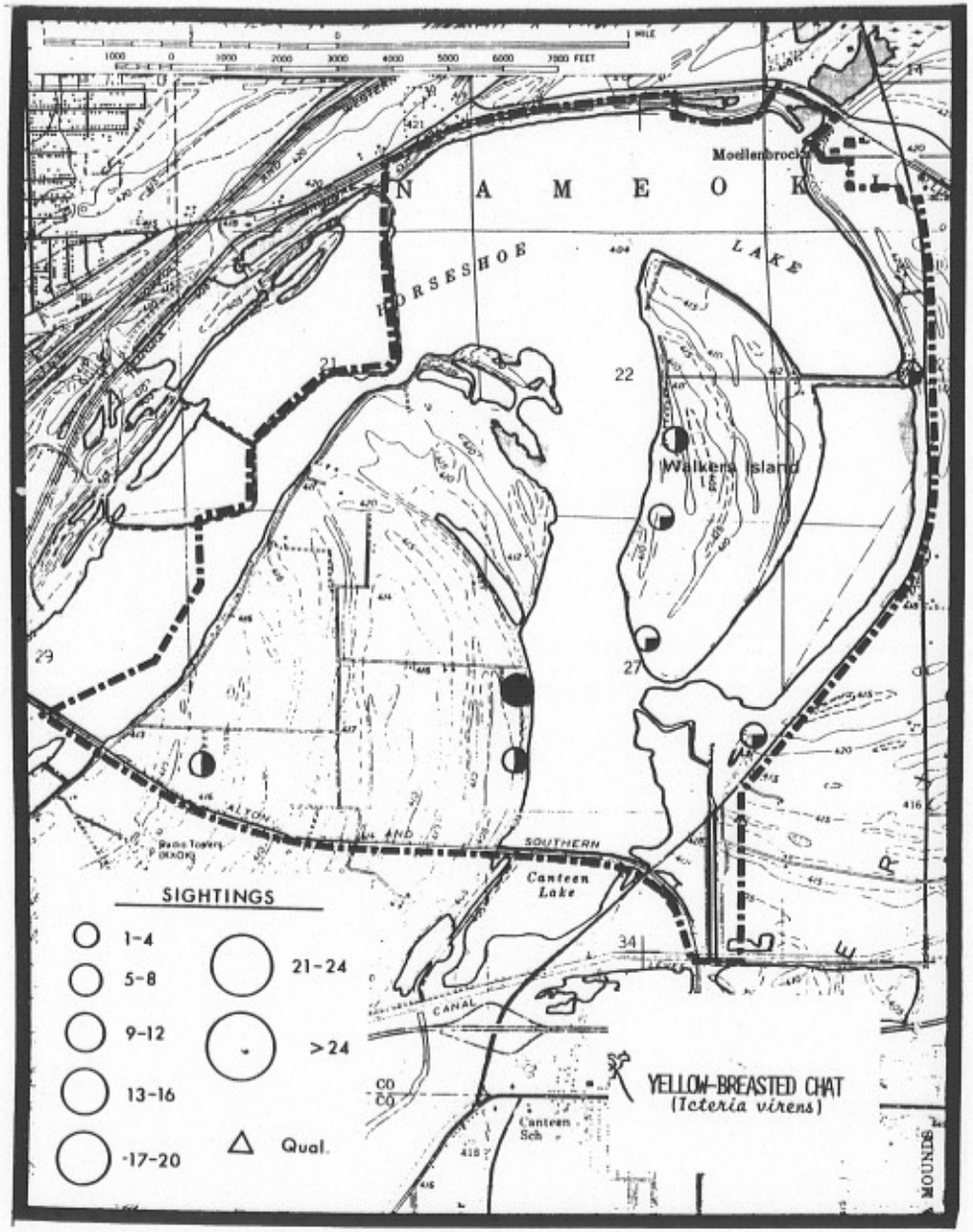

N A M E O K
HORSESHOE LAKE
Moellenbrock
Walkers Island
Canteen Lake
ALTON AND SOUTHERN
CANAL
Radio Towers (KAOK)
Canteen Sch
MOUNDS
SIGHTINGS
1-4
5-8
9-12
13-16
17-20
21-24
>24
Qual.
RED-EYED VIREO
(Vireo olivaceus)

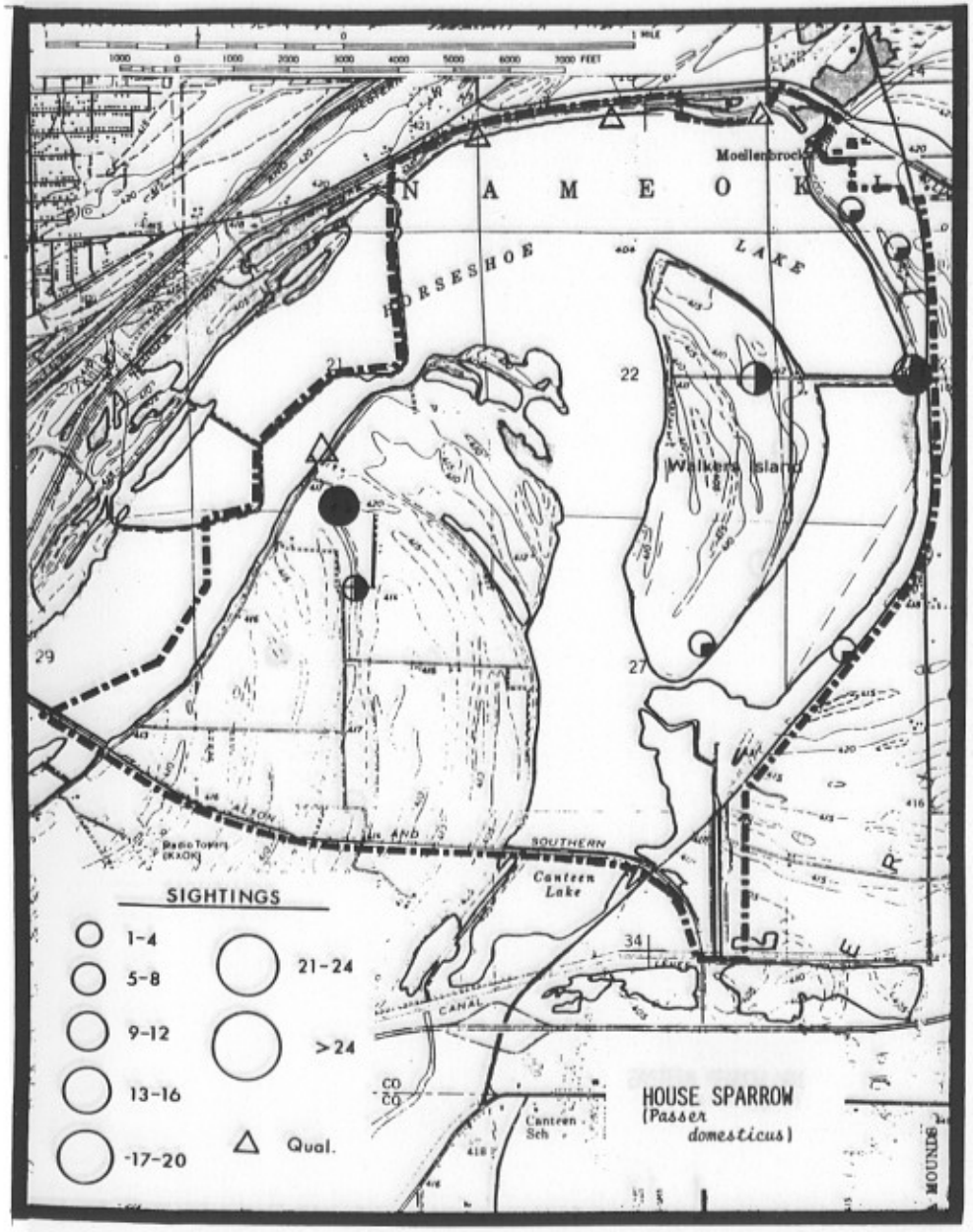

N A M E O K
HORSESHOE LAKE
Moellenbrock
Walkers Island
Canteen Lake
ALTON AND SOUTHERN
CANAL
Radio Towers (KAOK)
Canteen Sch
MOUNDS
SIGHTINGS
1-4
5-8
9-12
13-16
17-20
21-24
>24
Qual.
WARBLING VIREO
(Vireo gilvus)

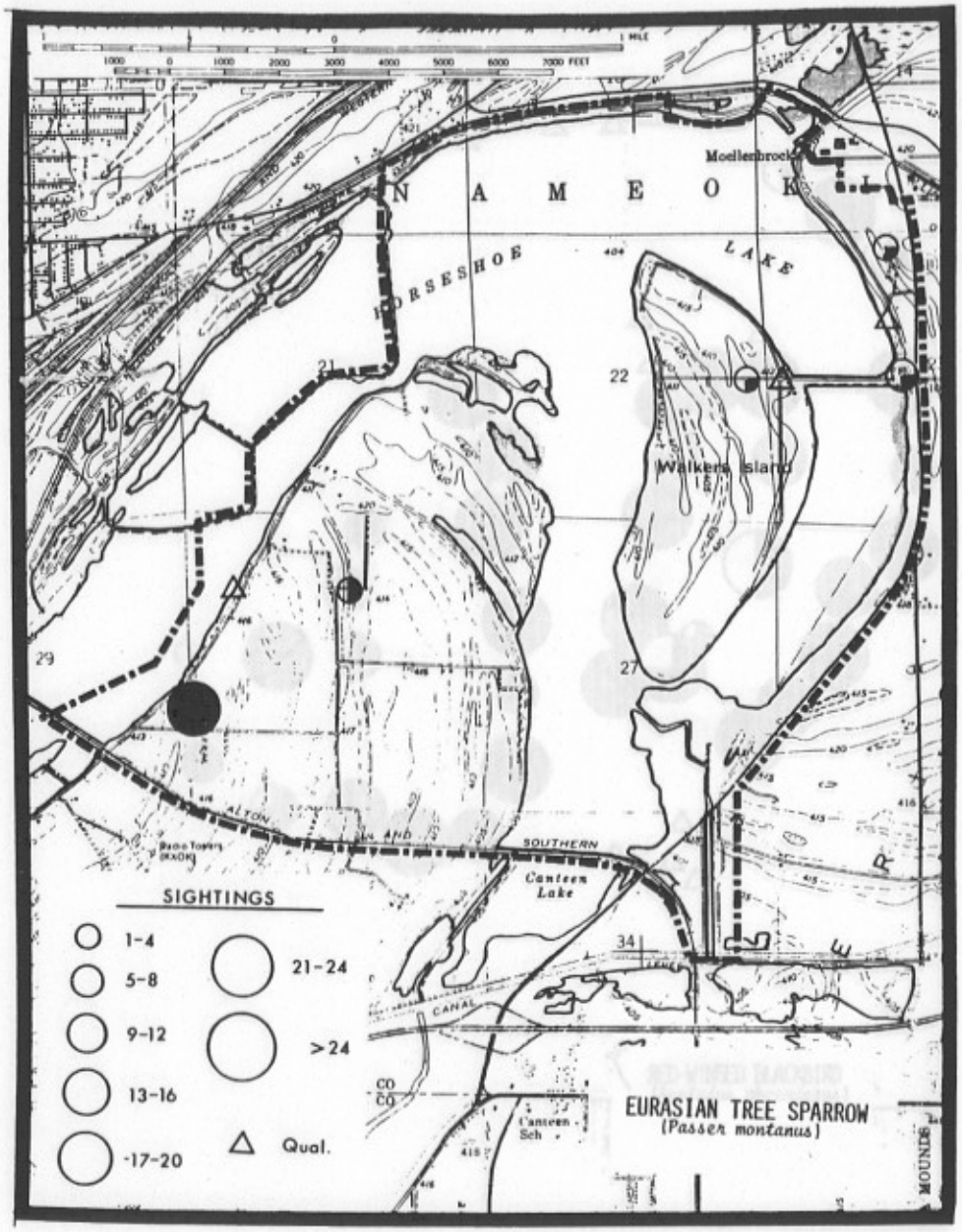

N A M E O K I
HORSESHOE LAKE
Moellenbrock
Walkers Island
Canteen Lake
ALTON AND SOUTHERN
CANAL
Radio Towers (KADK)
Canteen Sch
MOUNDS
SIGHTINGS
1-4
5-8
9-12
13-16
17-20
21-24
>24
Qual.
YELLOW WARBLER
(Dendroica petechia)

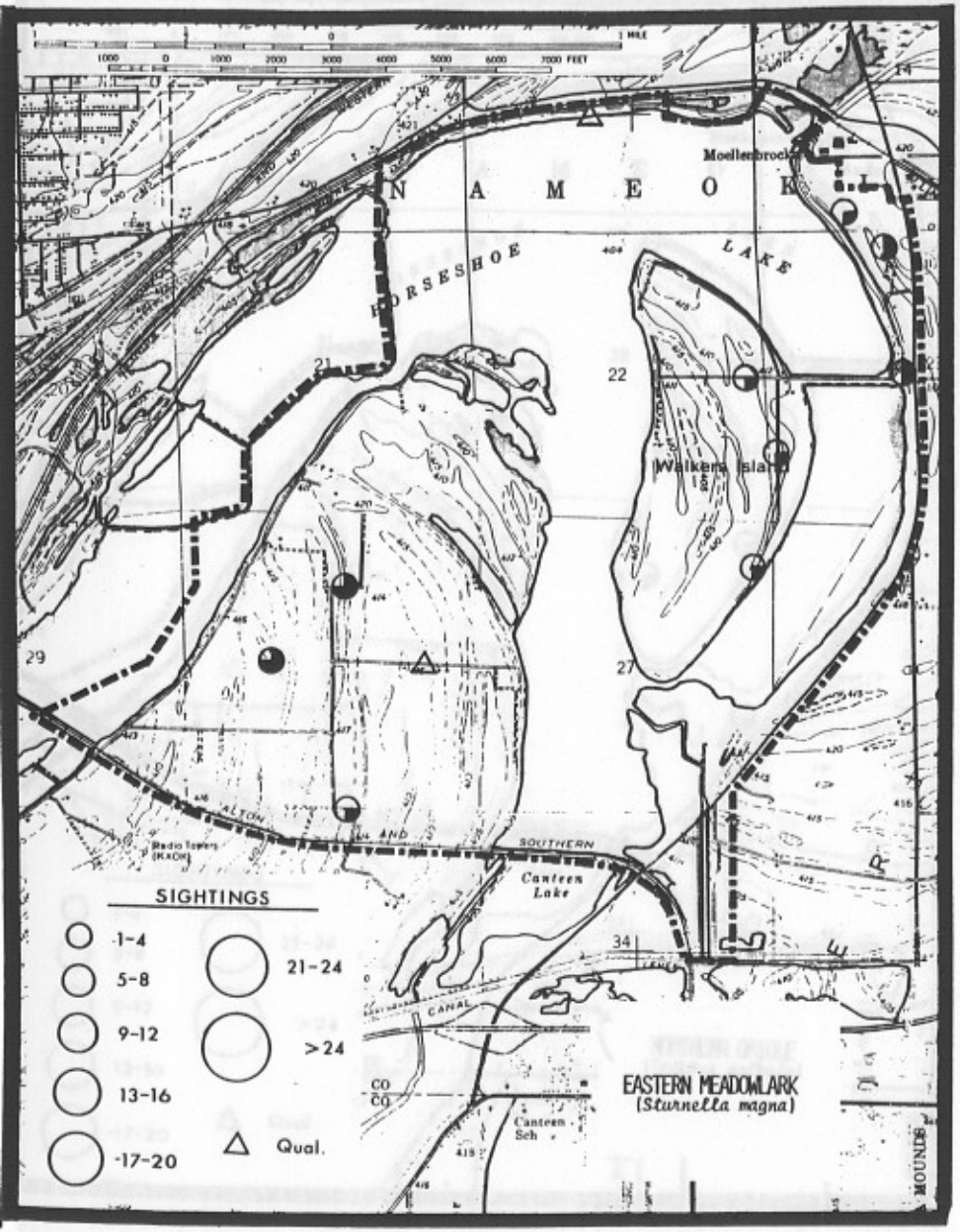

N A M E O K I
HORSESHOE LAKE
Moellenbrock
Walkers Island
Canteen Lake
ALTON AND SOUTHERN
CANAL
Radio Towers (KADK)
SIGHTINGS
1-4
5-8
9-12
13-16
17-20
21-24
>24
Qual.
BLACK-THROATED GREEN WARBLER
(Dendroica virens)


N A M E O K I
HORSESHOE LAKE
Moellenbrock
Walkens Island
Canteen Lake
ALTON AND SOUTHERN
CANAL
Radio Towers (KXOK)
Canteen Sch
SIGHTINGS
1-4
5-8
9-12
13-16
17-20
21-24
>24
Qual.
COMMON YELLOWTHROAT
(Geothlypis trichas)


N A M E O K I
HORSESHOE LAKE
Moellenbrock
Walkens Island
Canteen Lake
ALTON AND SOUTHERN
CANAL
Radio Towers (KXOK)
Canteen Sch
SIGHTINGS
1-4
5-8
9-12
13-16
17-20
21-24
>24
Qual.
YELLOW-BREASTED CHAT
(Icteria virens)


N A M E O K I
HORSESHOE LAKE
Moellenbrock
Walkers Island
Canteen Lake
ALTON AND SOUTHERN
CANAL
Radio Towers (KXOK)
Canteen Sch
MOUNDS
SIGHTINGS
1-4
5-8
9-12
13-16
17-20
21-24
>24
Qual.
HOUSE SPARROW
(Passer domesticus)


N A M E O K I
HORSESHOE LAKE
Moellenbrock
Walkers Island
Canteen Lake
ALTON AND SOUTHERN
CANAL
Radio Towers (KXOK)
Canteen Sch
MOUNDS
SIGHTINGS
1-4
5-8
9-12
13-16
17-20
21-24
>24
Qual.
EURASIAN TREE SPARROW
(Passer montanus)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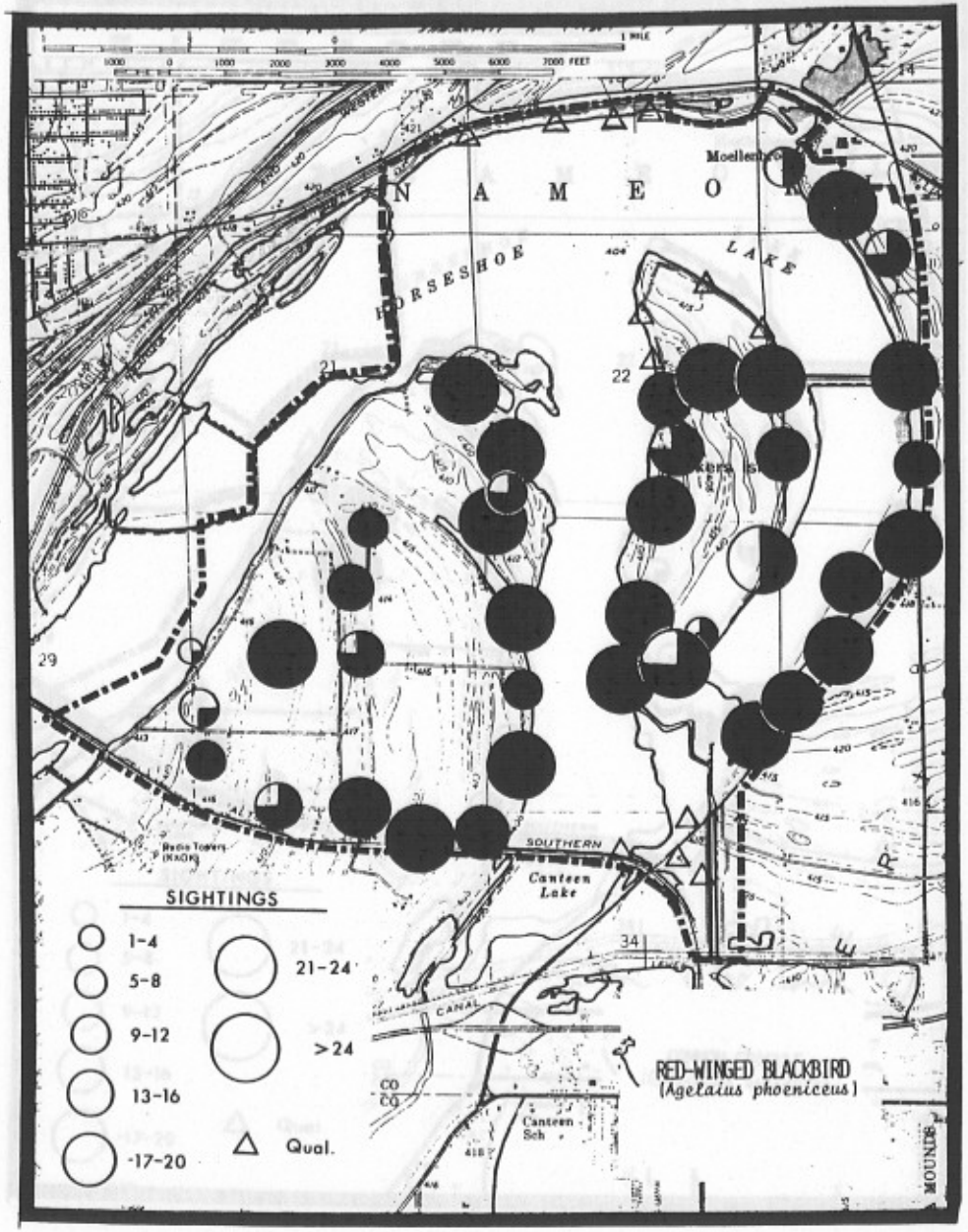
HORSESHOE LAKE
Moellenbrock
Walkers Island
Canteen Lake
ALTON AND SOUTHERN
CANAL
Radio Towers (KAOK)
Canteen Sch
MOUNDS
SIGHTINGS
1-4
5-8
9-12
13-16
17-20
21-24
>24
Qual.
EASTERN MEADOWLARK
(Sturnella magna)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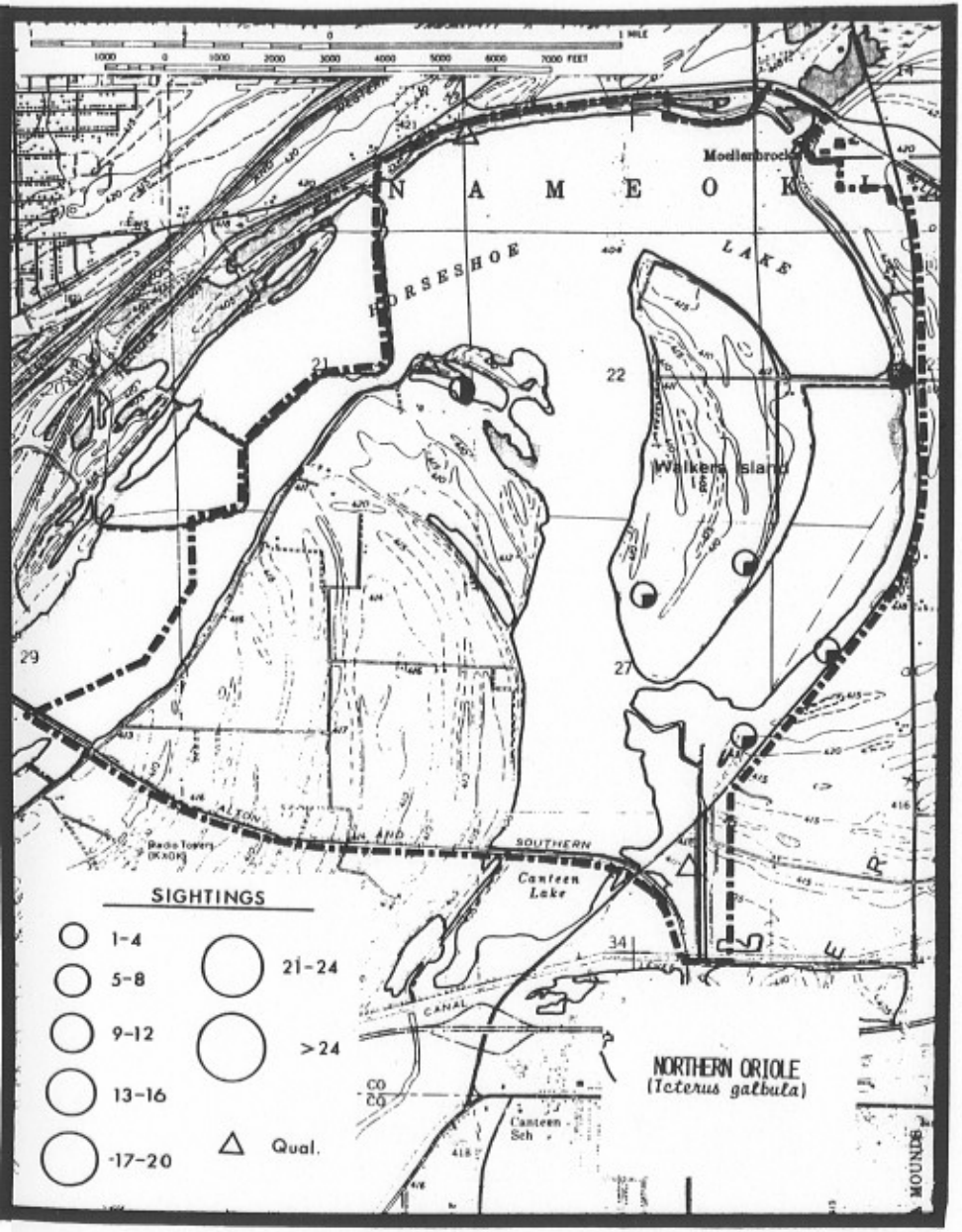
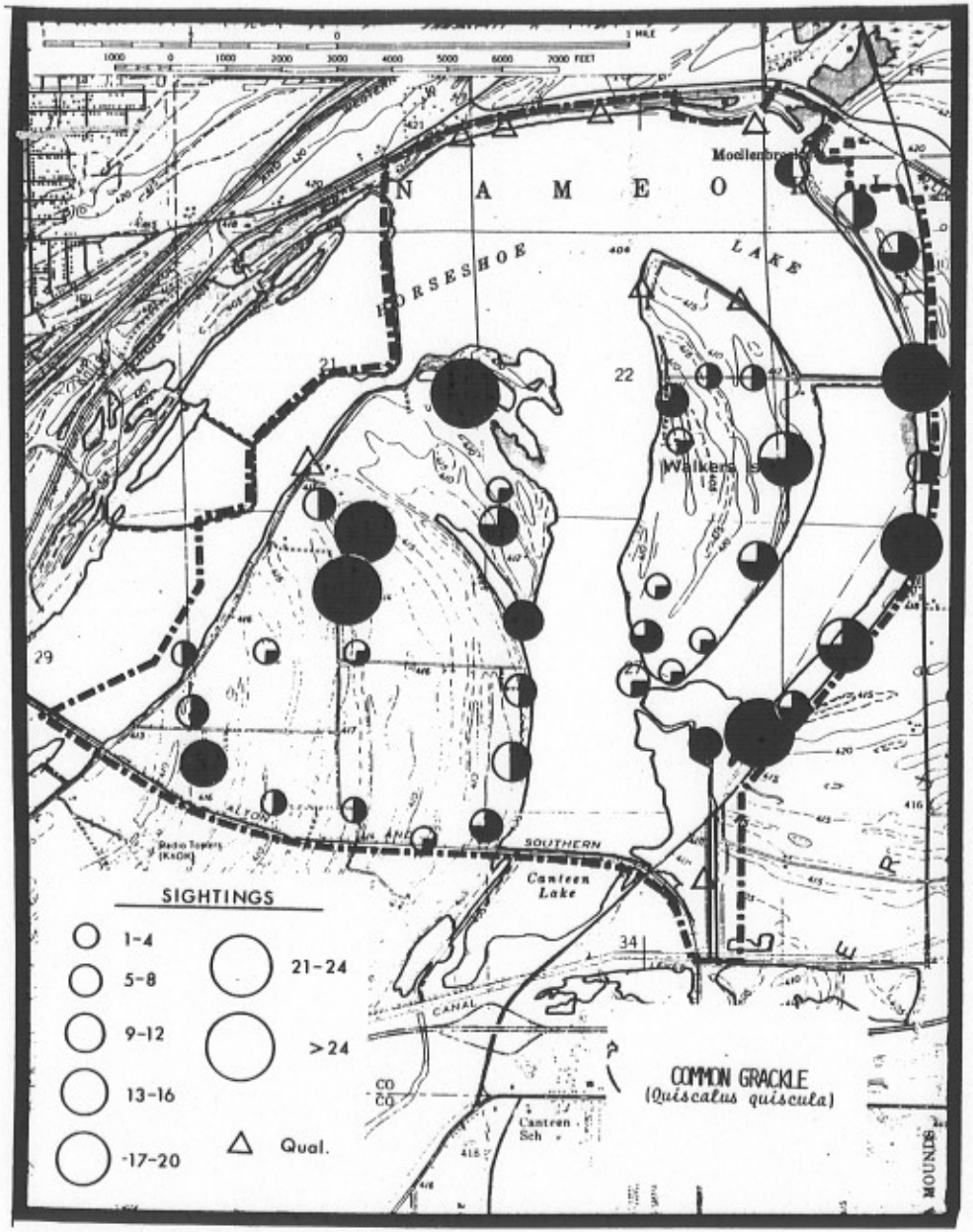
Canteen Lake
ALTON AND SOUTHERN
CANAL
Radio Towers (KAOK)
Canteen Sch
MOUNDS
SIGHTINGS
1-4
5-8
9-12
13-16
17-20
21-24
>24
Qual.
RED-WINGED BLACKBIRD
(Agelaius phoeniceus)


NAMEOKI
HORSESHOE LAKE
Mollenbrock
Walkers Island
ALTON AND SOUTHERN
Canteen Lake
CANAL
Canteen Sch
Radio Towers (KXOK)
MOUNDS
SIGHTINGS
1-4
5-8
9-12
13-16
17-20
21-24
>24
Qual.
NORTHERN ORIOLE
(Icterus galbula)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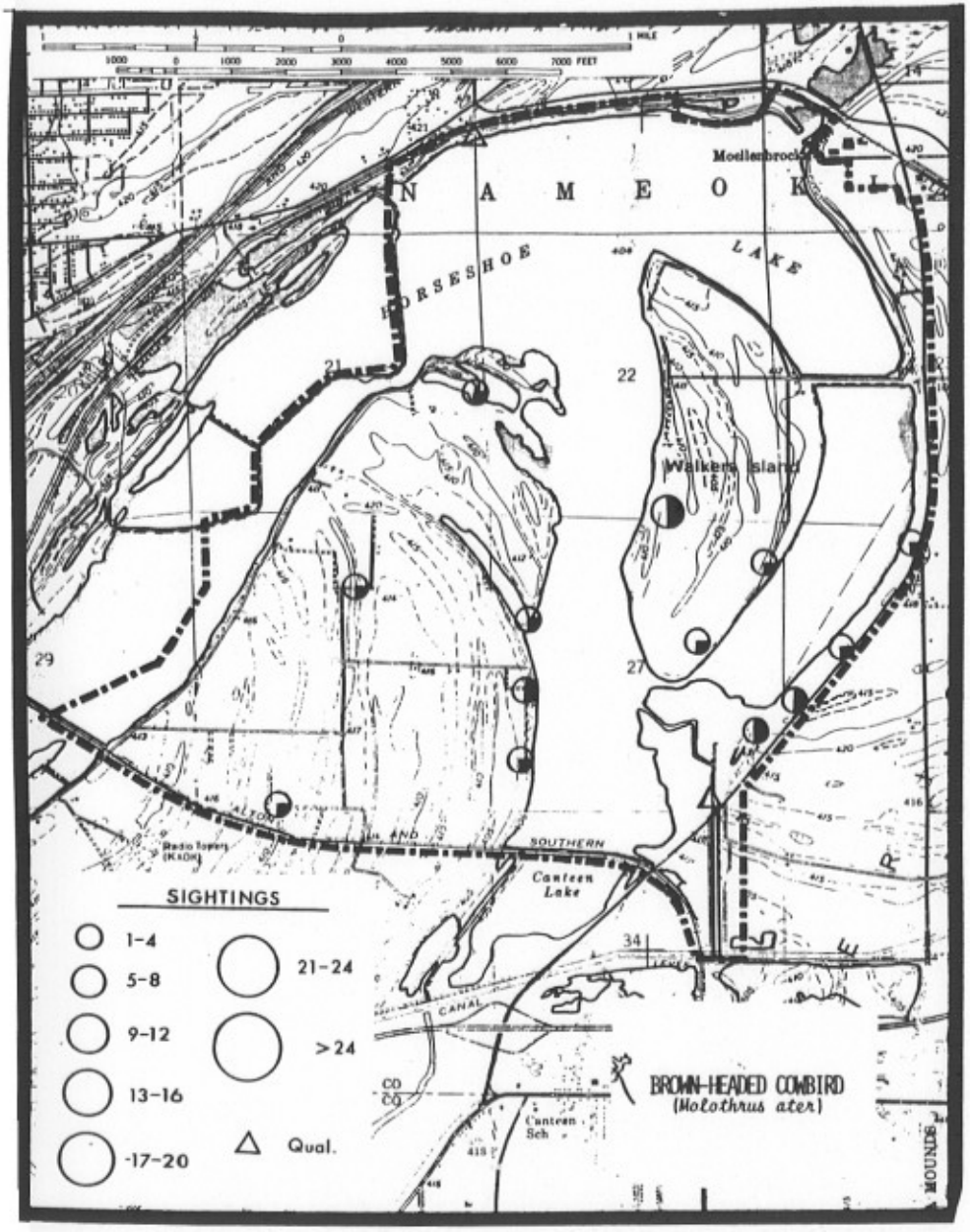
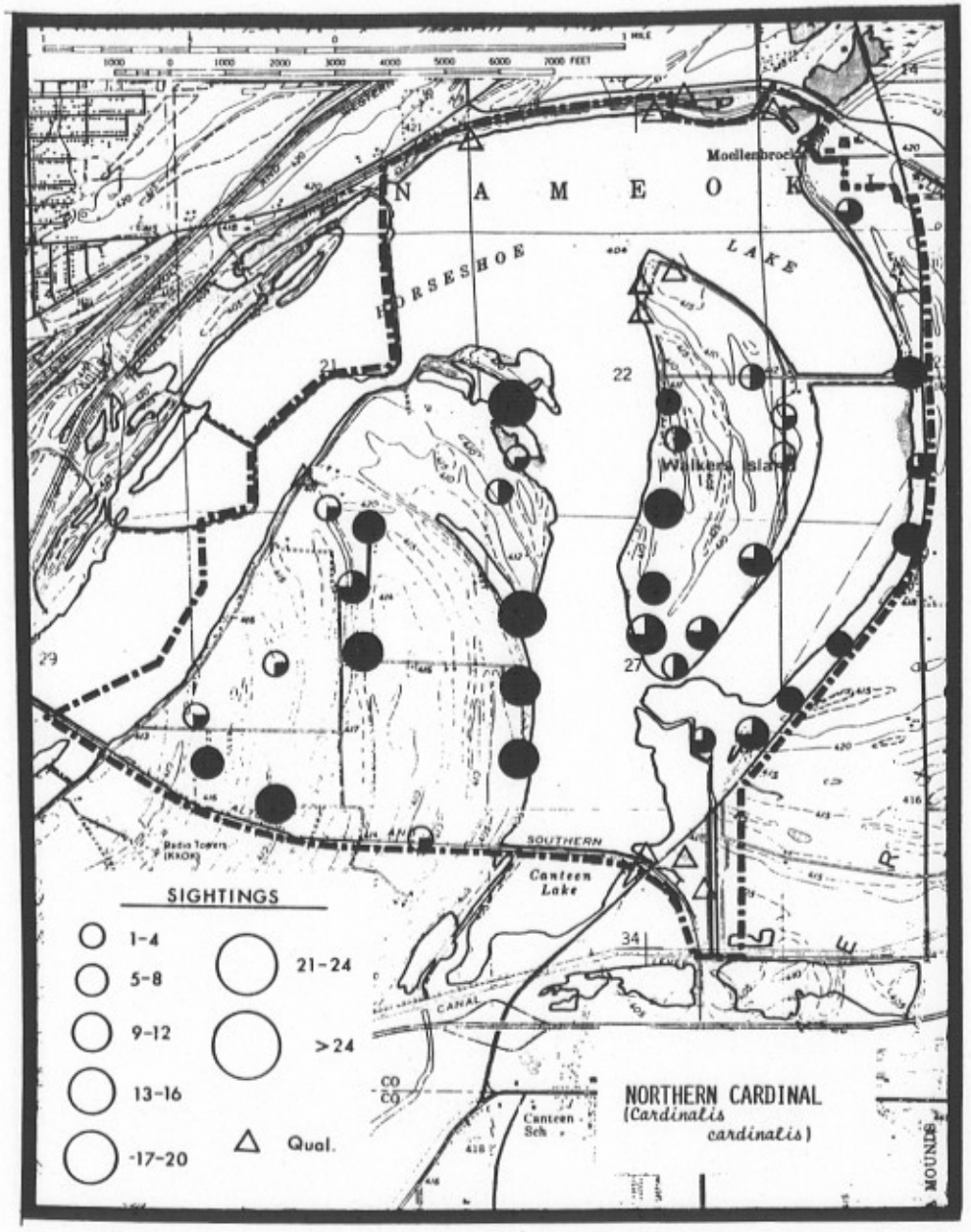
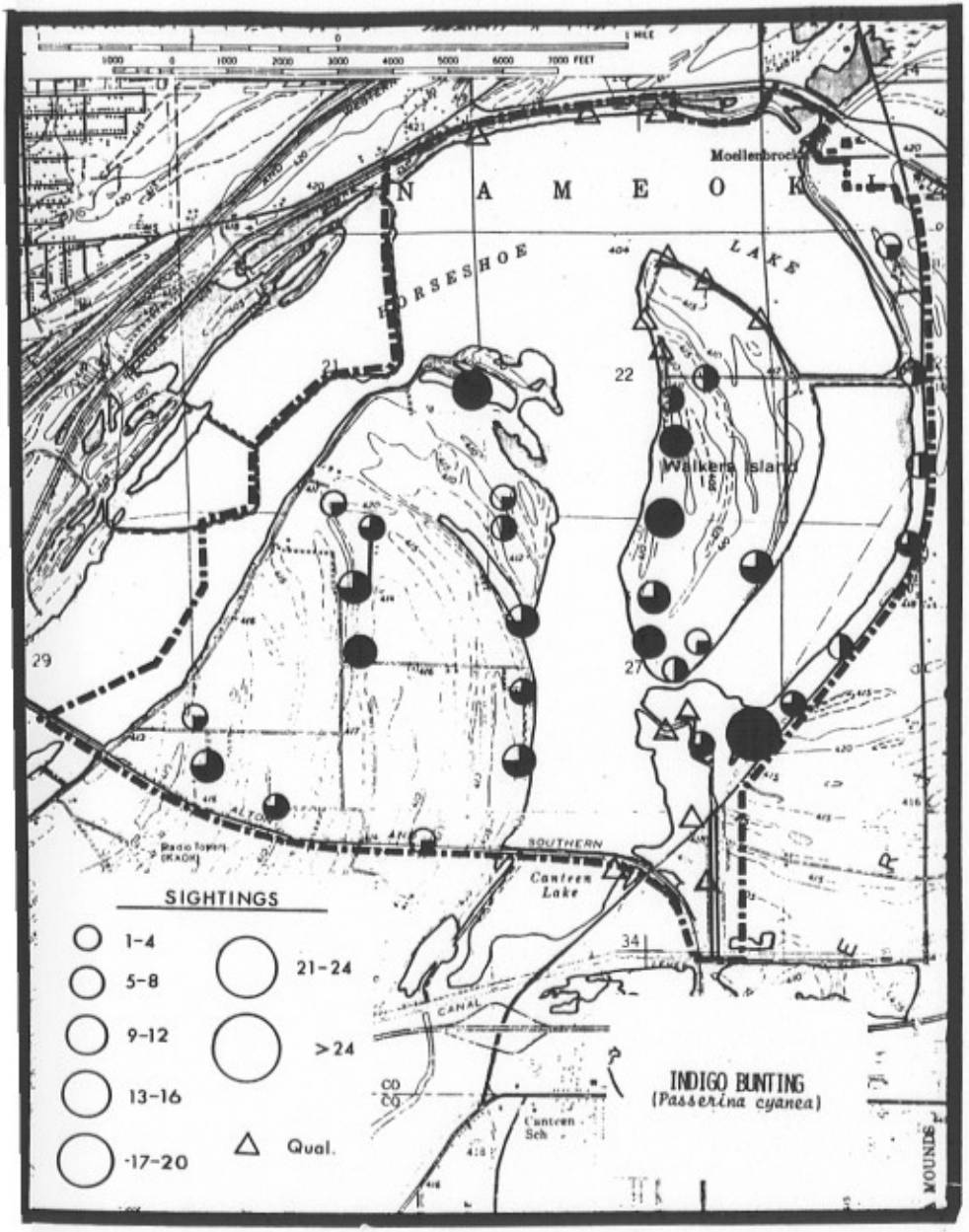
HORSESHOE LAKE
Mollenbrock
Walkers Island
ALTON AND SOUTHERN
Canteen Lake
CANAL
Canteen Sch
Radio Towers (KXOK)
MOUNDS
SIGHTINGS
1-4
5-8
9-12
13-16
17-20
21-24
>24
Qual.
COMMON GRACKLE
(Quiscalus quiscula)


N A M E O K I
HORSESHOE LAKE
Moellenbrock
Walkers Island
Canteen Lake
ALTON AND SOUTHERN
CANAL
Radio Towers (KKOK)
Canteen Sch
MOUNDS
SIGHTINGS
1-4
5-8
9-12
13-16
17-20
21-24
>24
Qual.
BROWN-HEADED COWBIRD
(Molothrus ater)


N A M E O K I
HORSESHOE LAKE
Moellenbrock
Walkers Island
Canteen Lake
ALTON AND SOUTHERN
CANAL
Radio Towers (KKOK)
Canteen Sch
MOUNDS
SIGHTINGS
1-4
5-8
9-12
13-16
17-20
21-24
>24
Qual.
NORTHERN CARDINAL
(Cardinalis cardinalis)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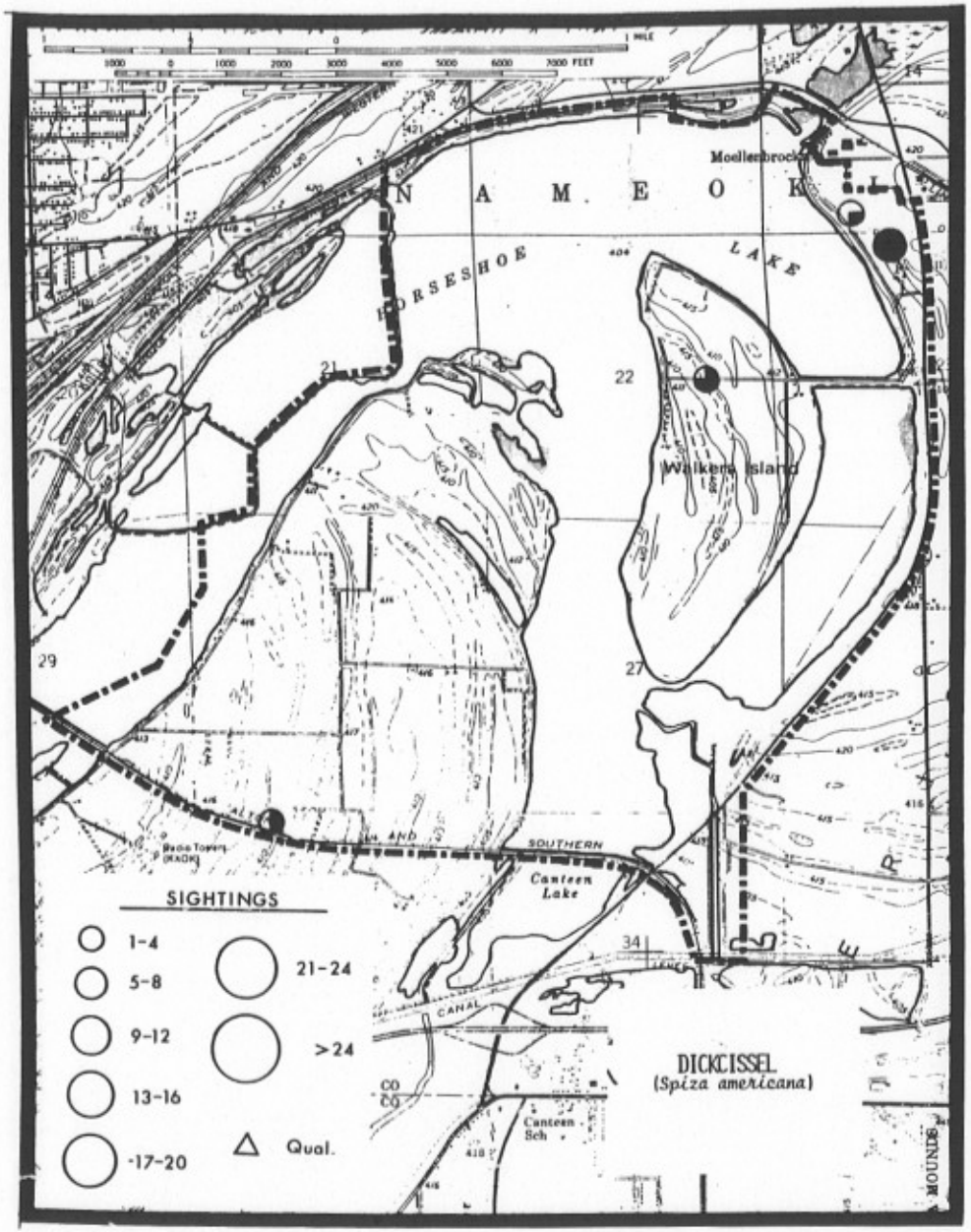
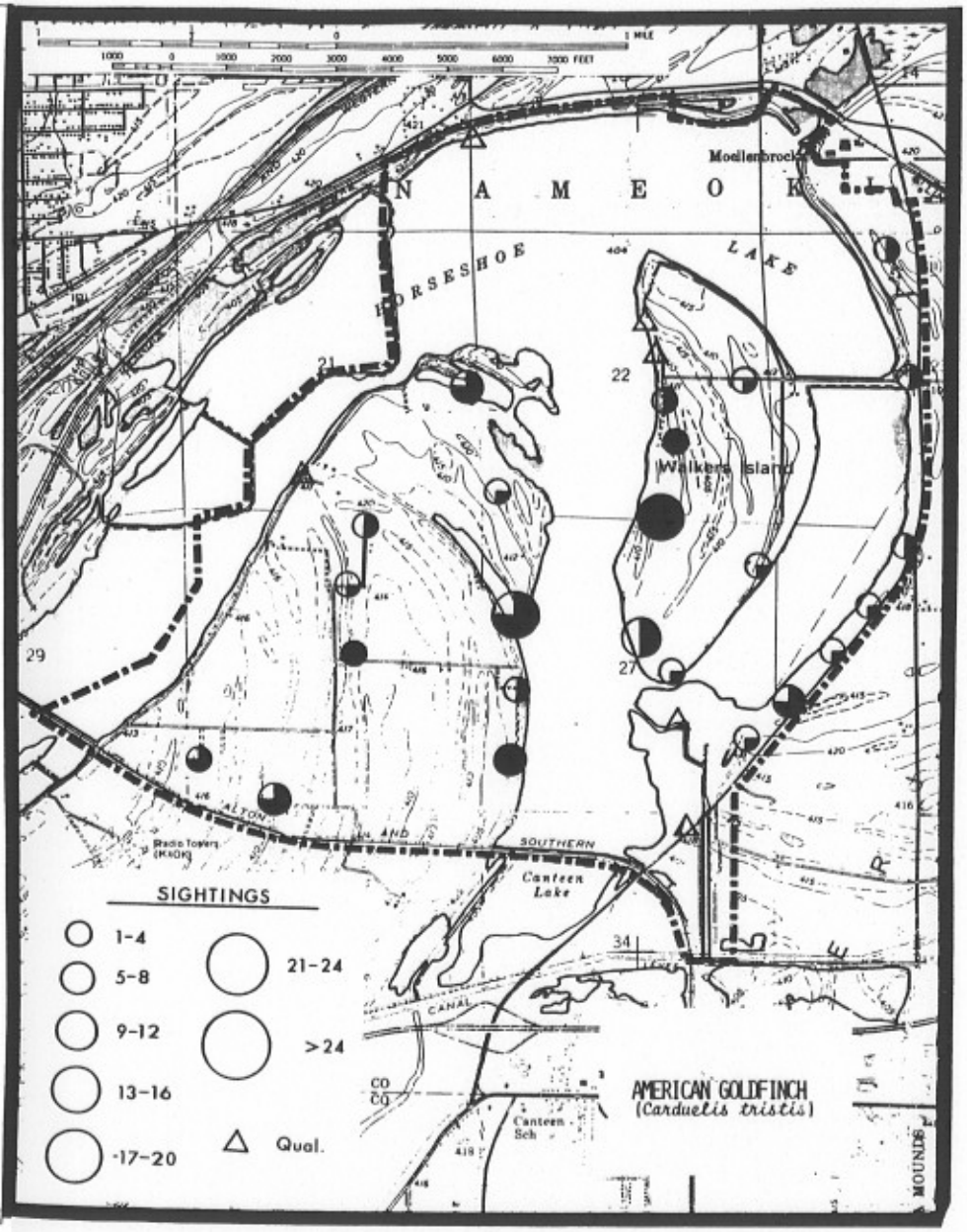
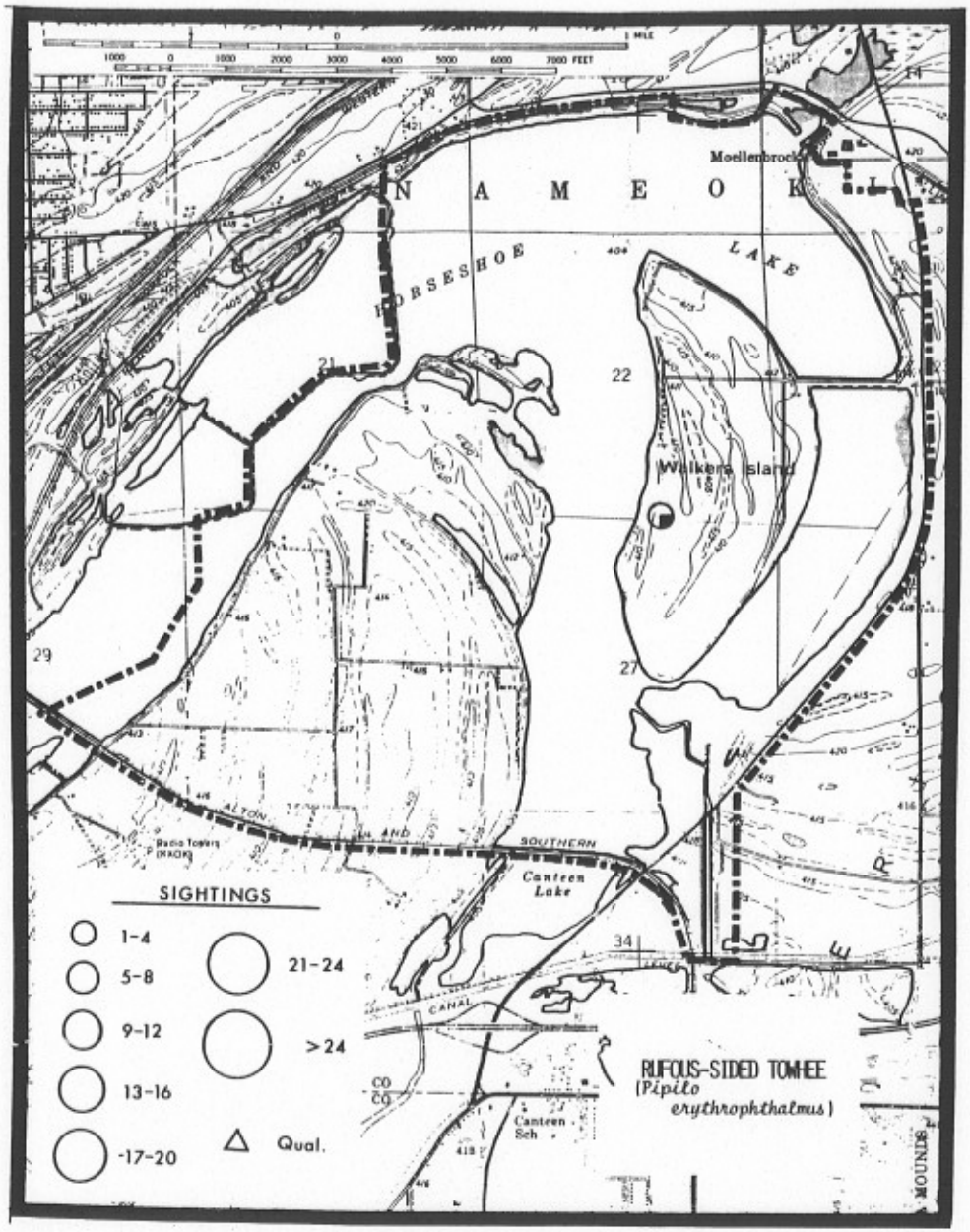
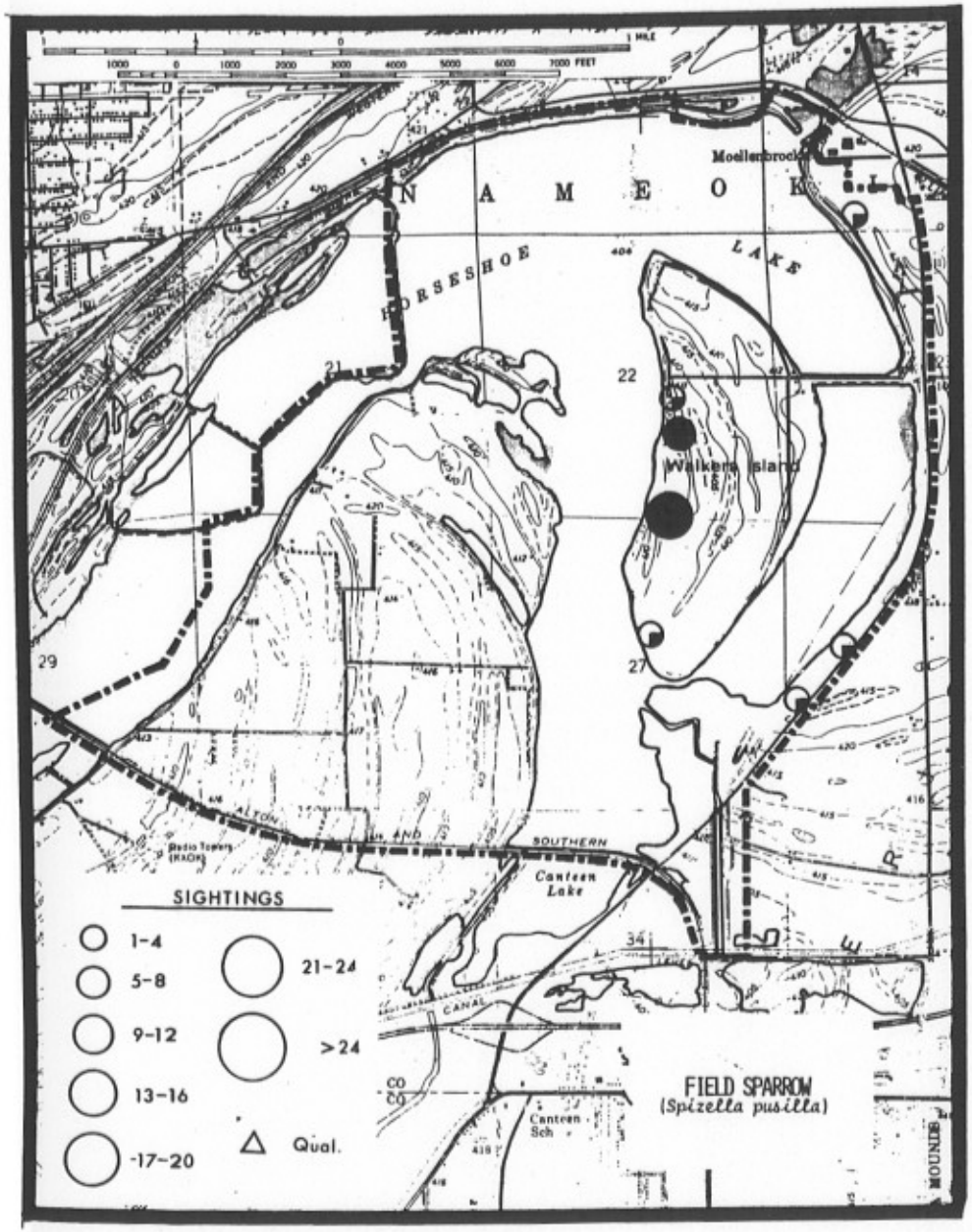
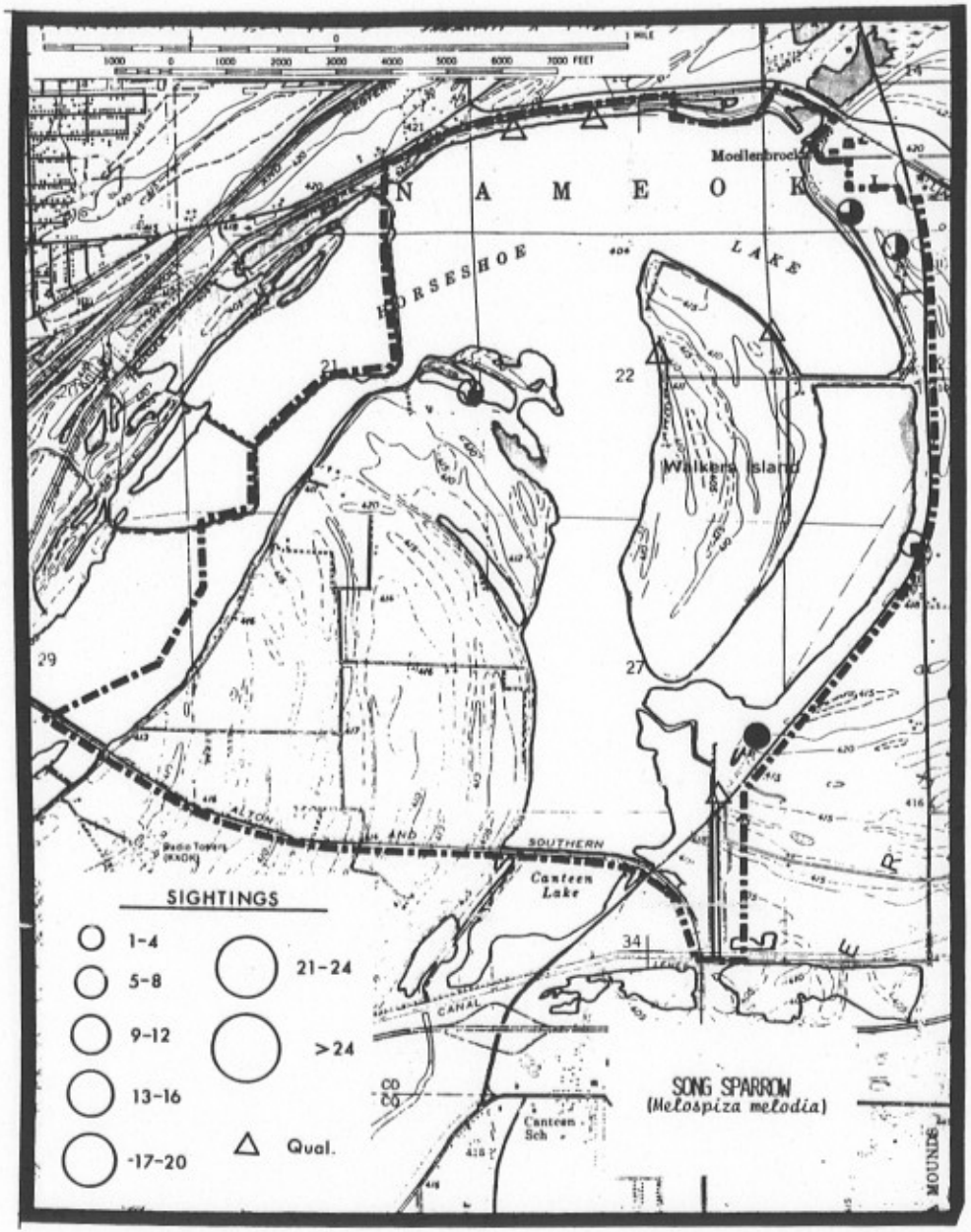
HORSESHOE LAKE
Moellenbrock
Walkers Island
Canteen Lake
SOUTHERN
CANAL
Radio Towers (KAOK)
Canteen Sch
MOUNDS
SIGHTINGS
1-4
5-8
9-12
13-16
17-20
21-24
>24
Qual.
INDIGO BUNTING
(Passerina cyanea)


N A M E O K I
HORSESHOE LAKE
Moellenbrock
Walkers Island
Canteen Lake
SOUTHERN
CANAL
Radio Towers (KAOK)
Canteen Sch
MOUNDS
SIGHTINGS
1-4
5-8
9-12
13-16
17-20
21-24
>24
Qual.
DICKCISSEL
(Spiza americana)


N A M E O K I
HORSESHOE LAKE
Moellenbrock
Walkers Island
Canteen Lake
ALTON AND SOUTHERN
CANAL
Radio Towers (KKOK)
Canteen Sch
SIGHTINGS
1-4
5-8
9-12
13-16
17-20
21-24
>24
Qual.
AMERICAN GOLDFINCH
(Carduelis tristis)


N A M E O K I
HORSESHOE LAKE
Moellenbrock
Walkers Island
Canteen Lake
ALTON AND SOUTHERN
CANAL
Radio Towers (KKOK)
Canteen Sch
SIGHTINGS
1-4
5-8
9-12
13-16
17-20
21-24
>24
Qual.
RUFOUS-SIDED TOWHEE
(Pipilo erythrophthalmus)


N A M E O K I
HORSESHOE LAKE
Moellenbrock
Walkers Island
Canteen Lake
ALTON AND SOUTHERN
CANAL
Radio Towers (KXOK)
Canteen Sch
MOUNDS
SIGHTINGS
1-4
5-8
9-12
13-16
-17-20
21-24
>24
Qual.
FIELD SPARROW
(Spizella pusilla)


N A M E O K I
HORSESHOE LAKE
Moellenbrock
Walkers Island
Canteen Lake
ALTON AND SOUTHERN
CANAL
Radio Towers (KXOK)
Canteen Sch
MOUNDS
SIGHTINGS
1-4
5-8
9-12
13-16
-17-20
21-24
>24
Qual.
SONG SPARROW
(Melospiza melodia)

Literature Cited

Bohlen, H. D. 1978. An annotated check-list of the birds of Illinois. Illinois State Museum, Popular Science Series, Vol. IX. Illinois State Museum, Springfield.

Sheviak, C. J., and R. H. Thom. 1981. Endangered and threatened vertebrate and vascular plants of Illinois. Illinois Department of Conservation, Springfield.

APPENDIX I

Locations of Census Stops/
Qualitative Census Routes

Locations of Census Stops

Refer to Figure 3, page 5, and to the USGS Monks Mound Quandrangle (1974, photorevised).

Transect I (Walker's Island)

Stop 1: Early successional field on a long narrow rise, bordered on all sides by cropland (corn and sunflowers). Count made from dirt road bisecting habitat. (SW¼, SW¼, SE¼, NE¼, SEC 22, T3N, R9W)

Stop 2: Early successional field between narrow forest strip and Lake. Stop marked with metal post. (SE¼,NW¼, SE¼, SEC 22, T3N, R9W)

Stop 3: Floodplain forest; stop located in southern quarter of narrow forest strip. Enter habitat from west near large cottonwood. (E½, SW¼, NW¼, NE¼, SEC 27, T3N, R9W)

Stop 4: Cattail marsh on Lake border. Count made from bank near mature river birch just off nature trail. (NW¼, NW¼, SW¼, SEC 27, T3N, R9W)

Stop 5: Developed land; wooded camping area. Count made from near water pump. (SW¼, NW¼, SE¼, NE¼, SEC 27, T3N, R9W)

Stop 6: Cropland; count made from along rock road. (SW¼, NW¼, SW¼, SW¼, SEC 23, T3N, R9W)

Transect II (between Lake and Hwy 111)

Stop 7: Floodplain forest; stop reached by following dirt trail along canal. After first sharp bend to the right, continue approximately 100 feet, then veer off trail by turning right and head into forest some 50 feet. (SW¼, NW¼, SE¼, SE¼, SEC 27, T3N, R9W)

Stop 8: Successional field near former homesite (old driveway still exists). Count made about 75 feet southeast of large lone willow, south of a locust stand.(NE¼, SE¼, NE¼, SE¼, SEC 27, T3N, R9W)

Stop 9: Wetland along Lake; count made from end of boat ramp. (due West of NW¼, SW¼, NW¼, SEC 26, T3N, R9W)

Stop 10: Floodplain forest, narrow riparian forest along Hwy 111. (W½, E½, SE¼, SW¼, SEC 23, T3N, R9W)

Stop 11: Developed land; count taken just north of road loop near playground area in mowed field.(S½, NW¼, NE¼, NW¼, SEC 23, T3N, R9W)

Stop 12: Lake; count taken from rise overlooking Lake near grove of large cottonwoods. (SE¼, NW¼, SW¼, SW¼, SEC 14, T3N, R9W)

Transect III (Peninsula)

Stop 13: Wetland in cove of Lake. Reached by cutting northeast through wooded border from cropland. (N½, SW¼, SW¼, SEC 22, T3N, R9W)

Stop 14: Cropland; count made from IDOC marker post along border between public and private land. (NW¼, NW¼, NW¼, SEC 27, T3N, R9W)

Stop 15: Successional field; count made from right-turn bend of old abandoned road. (middle of N½, NW¼, SW¼, SEC 27, T3N, R9W)

Stop 16: Wetland; count began upon crossing agricultural field while heading toward willow stand on edge of wetland habitat. (E½, NE¼, NE¼, NE¼, SEC 33, T3N, R9W)

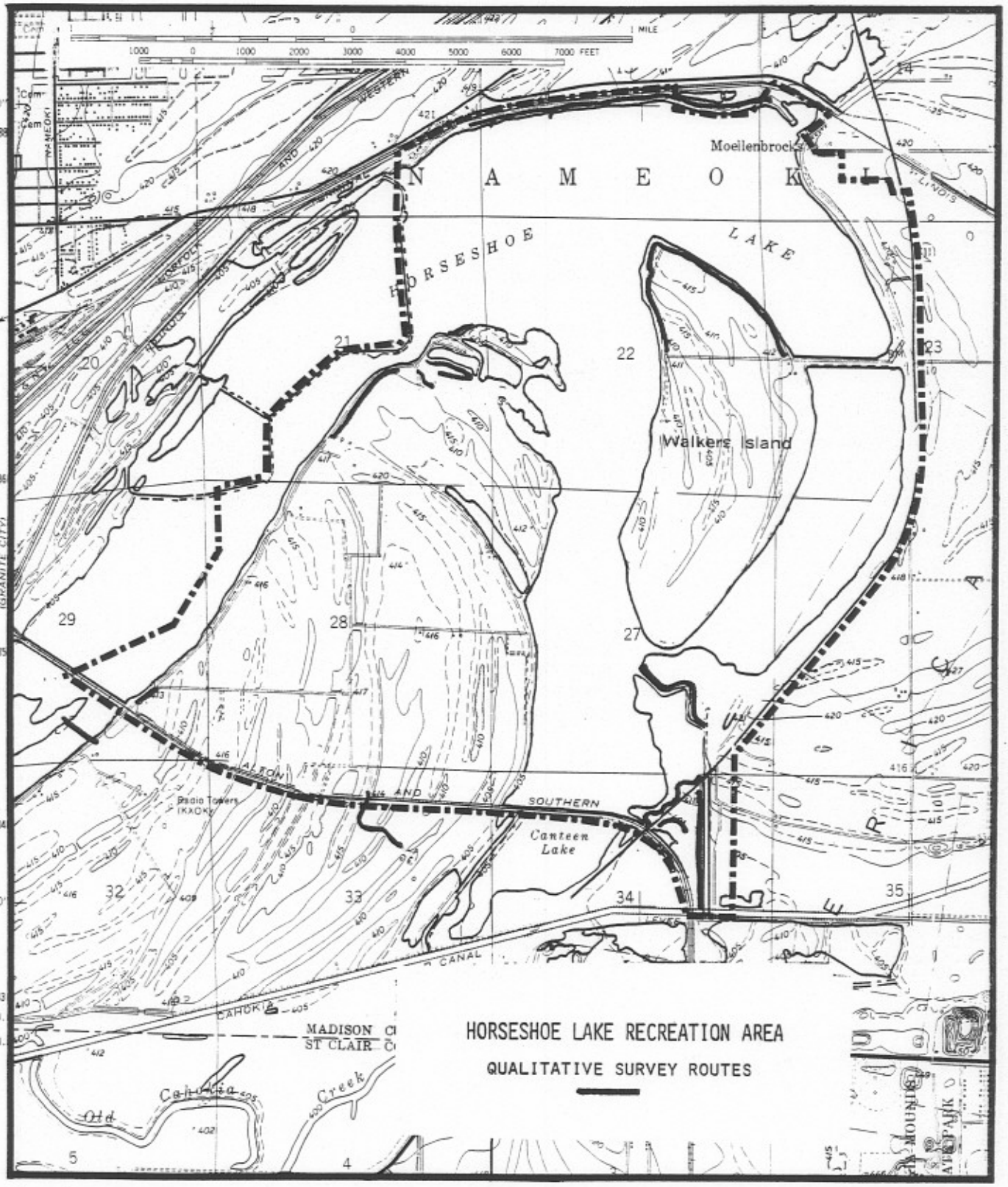
Stop 17: Cropland; count taken from road about 100 feet west of left-turn bend. (NW¼, NW¼, NW¼, NE¼, SEC 33, T3N, R9W)

Stop 18: Successional field; former homesite. Count made just south of old remaining driveway. (SE¼, NW¼, SW¼, SW¼, SEC 28, T3N, R9W)

Stop 19: Lake; count made from shore. Stop reached by heading almost due north from W. Nichols home. (NW¼, NW¼, NW¼, SW¼, SEC 28, T3N, R9W)

Stop 20: Old field, former homesite. Follow old driveway into area for about 50 feet. (SE¼, SW¼, SW¼, NE¼, SEC 28, T3N, R9W)

Stop 21: Old successional field; follow old road north. Stop is about midway between existing homesite (south) and cropland (north). (N½, NW¼, NE¼, SEC 28, T3N, R9W)


HORSESHOE LAKE RECREATION AREA
QUALITATIVE SURVEY ROUTES
N A M E O K I
HORSESHOE LAKE
Moellenbrock
Walkers Island
Canteen Lake
Radio Towers (KXOK)
ALTON AND SOUTHERN
CANAL
MADISON CO
ST CLAIR CO
Old Cahokia Creek
WESTERN
ILLINOIS
1 MILE
7000 FEET

APPENDIX II

Bird Species Tabulation Sheets

Observer: L. G. Nico

Address: Department of Biological Sc.

Southern Illinois Univ.-Edw.

AVIAN ECOLOGICAL INVESTIGATIONS

TABULATION SHEET

Site: Horseshoe Lake Rec. Area

Year: 1983

Page 1 of 2 (for this year)

Species (in A.O.U.* order)	Total Number of Different** TRANSECT LEGS Species	CENSUS STOPS Recorded	Species Present in Additional Habitats@	Estimated# Population	Habitat Preferences***
Great Blue Heron	2	3		1-5	L,W
Green-backed Heron	4	2	x	6-15	L,W
Little Blue Heron	5	3	x	6-15	L,W
Cattle Egret	7	5		50+	W,C
Great Egret	2	2	x	6-15	L,W
Snowy Egret	1	0		6-15	W
Black-crowned Night-Heron	7	7	x	16-50	L,W
Yellow-crowned Night-Heron	0	1	x	Possible	L,W
Mallard	16	12	x	16-50	L,W,W
Blue-winged Teal	3	1	x	1-5	W
Wood Duck	1	1		1-5	L,W
Red-tailed Hawk	1	1	x	1-5	C,S,F(E)
American Kestrel	2	0	x	1-5	C(E),S(E),D
Northern Bobwhite	17	11	x	50+	E,S,C,F(E)
Killdeer	13	7	x	16-50	W,S,C
Spotted Sandpiper	0	1		Possible	M,L(E);Migrant
American Woodcock	2	1	x	1-5	W,F
Gull sp.	1	1		0	Migrant
Common Tern	0	0	x	0	Migrant
Rock Dove	0	1		Possible	D,C
Mourning Dove	12	6	x	50+	S,C,F(E)
Yellow-Billed Cuckoo	12	8	x	16-50	F,S,E
Common Screech Owl	0	0	x	1-5	D,F
Great Horned Owl	1	0	x	1-5	F(E),C(E)
Common Nighthawk	1	0	x	6-15	L,D
Chimney Swift	15	8	x	50+	L,W,C,S,D,F
Ruby-throated Hummingbird	1	1	x	1-5	S,F(E)
Belted Kingfisher	2	0	x	1-5	L(E)
Northern Flicker	8	1		6-15	D,F,F(E)
Red-bellied Woodpecker	7	1		6-15	F
Downy Woodpecker	8	4	x	16-50	F,F(E),S^o
Red-headed Woodpecker	2	0		6-15	F
Eastern Kingbird	3	1	x	6-15	D,S,E
Great Crested Flycatcher	4	0	x	1-5	F(E),F
Eastern Phoebe	0	0	x	Possible	F(E)
Empidonax flycatcher	1	2	x	6-15	W(E),S,L(E)
Willow Flycatcher (nonsing.)	4	0	x	6-15	S,L(E)
Eastern Wood-Pewee	6	2	x	16-50	F
Horned Lark	4	2		16-50	C
Bank Swallow	3	3	x	16-50	L,W,C,S
Barn Swallow	12	14	x	16-50	W,L,C,S,D
Purple Martin	2	1	x	1-5	L,S

* A.O.U. = American Ornithologists' Union

** Indicate the total number of different Transect Legs and Census Stops the species was recorded; five Transect Sets would have about 50 Census Stops and 55 Transect Legs.

@ Recorded during qualitative surveys (x).

\# Use one of the following categories for this column: 1-5 prs; 6-15 prs; 16-50 prs; or > 50 prs.

*** L=Lake; W=wetland; C=cropland; S=successional fields (S^o=late, S^e=early); F=floodplain

Observer: L. G. Nico

Address: Dept. of Biological Sciences

Southern Illinois Univ.-Edw.

AVIAN ECOLOGICAL INVESTIGATIONS

TABULATION SHEET

Site: Horseshoe Lake Rec. Area

Year: 1983

Species (in A.O.U.* order)	Total Number of Different** TRANSECT LEGS Species	CENSUS STOPS Recorded	Species Present in Additional Habitats@	Estimated# Population	Habitat Preferences
Blue Jay	10	5	x	16-50	F, D
American Crow	9	3	x	16-50	C,F, S(E)
Black-capped Chickadee	14	10	x	50+	F, S^o
Tufted Titmouse	4	3	x	16-50	F
House Wren	3	0	x	6-15	F,
Carolina Wren	2	1	x	1-5	F, S^o
Northern Mockingbird	1	0	x	1-5	C, S^o
Gray Catbird	4	3		6-15	F(E), S^o
Brown Thrasher	7	4	x	16-50	F(E), S
American Robin	15	7	x	50+	D, S^o, F
Eastern Bluebird	0	0	x	0	Migrant
Blue-gray Gnatcatcher	2	1		1-5	F
Cedar Waxwing	5	0	x	50+	S, F(E)
European Starling	14	7	x	50+	D
White-eyed Vireo	3	1		6-15	S^o, F(E)
Bell's Vireo	0	1	x	1-5	S^o
Red-eyed Vireo	10	3	x	16-50	F
Warbling Vireo	14	4	x	50+	F, F(E), S^o
Yellow Warbler	2	2	x	6-15	S^o, F(E)
Black-throated Green Warbler	1	0		0	Migrant
Common Yellowthroat	11	6	x	50+	S, W(E)
Yellow-breasted Chat	5	3		16-50	S^o, F(E)
House Sparrow	6	2	x	50+	D
Eurasian Tree Sparrow	3	1	x	50+	D
Eastern Meadowlark	6	3	x	16-50	C, D
Red-winged Blackbird	20	19	x	50+	C, S, F(E), W
Northern Oriole	5	1	x	6-15	F(E)
Common Grackle	20	19	x	50+	F, C, L(E), S, D
Brown-headed Cowbird	10	3	x	50+	F, F(E)
Northern Cardinal	22	12	x	50+	F, S^o
Indigo Bunting	18	13	x	50+	S, F(E)
Dickcissel	2	2		6-15	C, S^e
American Goldfinch	16	8	x	50+	S, F(E)
Rufous-sided Towhee	1	0		Possible	F(E)
Field Sparrow	5	2		16-50	S
Song Sparrow	4	1	x	16-50	S, E

* A.O.U. = American Ornithologists' Union

** Indicate the total number of different Transect Legs and Census Stops the species was recorded; five Transect Sets would have about 50 Census Stops and 55 Transect Legs.

@ Recorded during qualitative surveys (x)

\# Use one of the following categories for this column: 1-5 prs; 6-15 prs; 16-50 prs; or > 50 prs.

*** L=Lake; W=wetland; C=cropland; S=succesional fields (S^o=late, S^e=early); F=floodplain

Observer: Leo G. Nico

Address: Southern Illinois Univ.-Edw.

AVIAN ECOLOGICAL INVESTIGATIONS

TABULATION SHEET

Site: Horseshoe Lake Rec. Area

Year: 1983

Page 1 of 2 (for this year)

Species (in A.O.U.* order)	TOTAL # OF EN-COUNTERS FOR EACH SPECIES	PROP. OF TOTAL ENC'S (%)	PROP. OF TRIPS ON WHICH EACH SPECIES ENC. (%)	AVG. # OF ENCOUNTERS PER TRIP	TOTAL # OF STOPS WHERE EACH SPECIES WAS ENCOUNTERED	PROP. OF STOPS WHERE EACH SPECIES WAS ENC. (%)
Great Blue Heron	5	0.12	33	0.42	3	14.3
Green-backed Heron	9	0.22	33	0.75	2	9.5
Little Blue Heron	24	0.60	58	2.00	3	14.3
Cattle Egret	26	0.65	67	2.17	5	23.8
Great Egret	19	0.47	42	1.58	2	9.5
Snowy Egret	4	0.10	25	0.33	0	0
Black-crowned Night-Heron	57	1.42	75	4.75	7	33.3
Yellow-crowned Night-Heron	1	0.02	8	0.08	1	4.8
Mallard	139	3.47	100	11.58	12	57.1
Blue-winged Teal	12	0.30	33	1.00	1	4.8
Wood Duck	5	0.12	17	0.42	1	4.8
Red-tailed Hawk	2	0.05	17	0.17	1	4.8
American Kestrel	6	0.15	33	0.50	0	0
Northern Bobwhite	118	2.94	100	9.83	11	52.4
Killdeer	61	1.52	100	5.08	7	33.3
Spotted Sandpiper	21	0.52	8	1.75	1	4.8
American Woodcock	3	0.07	25	0.25	1	4.8
Gull sp.	19	0.47	25	1.58	1	4.8
Common Tern	0	0.00	0	0.00	0	0
Rock Dove	11	0.27	17	0.92	1	4.8
Mourning Dove	45	1.12	75	3.75	6	28.6
Yellow-billed Cuckoo	37	0.93	92	3.08	8	38.1
Common Screech Owl	0	0.00	0	0.00	0	0
Great Horned Owl	3	0.07	17	0.25	0	0
Common Nighthawk	3	0.07	17	0.25	0	0
Chimney Swift	52	1.30	100	4.33	7	33.3
Ruby-throated Hummingbird	3	0.07	17	0.25	1	4.8
Belted Kingfisher	3	0.07	17	0.25	0	0
Northern Flicker	12	0.30	67	1.00	1	4.8
Red-bellied Woodpecker	12	0.30	67	1.00	1	4.8
Downy Woodpecker	18	0.45	58	1.50	4	19.0
Red-headed Woodpecker	3	0.07	17	0.25	0	0
Eastern Kingbird	11	0.27	50	0.92	1	4.8
Great Crested Flycatcher	4	0.10	25	0.33	0	0
Eastern Phoebe	0	0.00	0	0.00	0	0
Empidonax sp.	3	0.07	25	0.25	2	9.5
Willow Flycatcher	4	0.10	33	0.33	0	0
Eastern Wood-Pewee	14	0.35	42	1.17	2	9.5
Horned Lark	13	0.32	50	1.08	2	9.5
Bank Swallow	43	1.07	25	3.58	3	14.3
Barn Swallow	101	2.52	100	8.42	14	66.7
Purple Martin	3	0.07	25	0.25	1	4.8

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AVIAN ECOLOGICAL INVESTIGATIONS

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Year: 1983

Page 2 of 2 (for this year)

Species (in A.O.U.* order)	TOTAL # OF ENCOUNTERS FOR EACH SPECIES	PROP. OF TOTAL ENC'S (%)	PROP. OF TRIPS ON WHICH EACH SPECIES ENC. (%)	AVG. # OF ENCOUNTERS PER TRIP	TOTAL # OF STOPS WHERE EACH SPECIES WAS ENCOUNTERED	PROP. OF STOPS WHERE EACH SPECIES WAS ENC. (%)
Blue Jay	27	0.67	92	2.25	5	23.8
American Crow	28	0.70	92	2.33	3	14.3
Black-capped Chickadee	62	1.55	100	5.17	10	47.6
Tufted Titmouse	19	0.47	67	1.58	3	14.3
House Wren	10	0.25	50	0.83	0	0
Carolina Wren	8	0.20	58	0.67	1	4.8
Northern Mockingbird	6	0.15	33	0.50	0	0
Gray Catbird	8	0.20	42	0.67	3	14.3
Brown Thrasher	20	0.50	58	1.67	4	19.0
American Robin	104	2.60	100	8.67	7	33.3
Eastern Bluebird	0	0.00	0	0.00	0	0
Blue-gray Gnatcatcher	8	0.20	33	0.67	1	4.8
Cedar Waxwing	46	1.15	33	3.83	0	0
European Starling	295	7.36	100	24.58	7	33.3
White-eyed Vireo	5	0.12	33	0.42	1	4.8
Bell's Vireo	2	0.05	17	0.17	1	4.8
Red-eyed Vireo	33	0.82	92	2.75	3	14.3
Warbling Vireo	74	1.85	92	6.17	4	19.0
Yellow Warbler	6	0.15	50	0.50	2	9.5
Black-throated Green Warbler	1	0.02	8	0.08	0	0
Common Yellowthroat	52	1.30	92	4.33	6	28.6
Yellow-breasted Chat	15	0.37	75	1.25	3	14.3
House Sparrow	39	0.97	83	3.25	2	9.5
Eurasian Tree Sparrow	43	1.07	42	3.58	1	4.8
Eastern Meadowlark	19	0.47	83	1.58	3	14.3
Red-winged Backbird	1,180	29.45	100	98.33	19	90.5
Northern Oriole	9	0.22	58	0.75	1	4.8
Common Grackle	455	17.36	100	37.92	19	90.5
Brown-headed Cowbird	28	0.70	83	2.33	3	14.3
Northern Cardinal	186	4.64	100	15.50	12	57.1
Indigo Bunting	140	3.49	100	11.67	13	61.9
Dickcissel	12	0.30	75	1.00	2	9.5
American Goldfinch	98	2.45	100	8.17	8	38.1
Rufous-sided Towhee	1	0.02	8	0.08	0	0
Field Sparrow	28	0.70	58	2.33	2	9.5
Song Sparrow	11	0.27	58	0.92	1	4.8

* A.O.U. = American Ornithologists' Union

APPENDIX III

Vegetative Synopses of Census Stops: Stratum Ranking Forms

STRATUM RANKING FORM

Site Horseshoe Lake Recreation Area Transect Set I Census Stop # (1) 21 Page 1 of 21

Observer L.g. Vico Community Type of Census Stop Successional Field: early ; surrounded by cropland (corn, sunflowers) Date 2 July 1983

Stratum Ranking

9 Dominant in essentially pure stand, no other species exceed SR2

8 Dominant, next lower species cannot exceed SR6

7 Codominants, two or possibly three species sharing dominance

6 Codominants, several species sharing dominance

5 Intermediate, common species with moderate cover

4 Intermediate, common species with low to moderate cover

3 Intermediate, several plants with minimal cover

2 Subordinate, two to several plants of inconsequential cover

1 Subordinate, only one individual noted

STRATUM Trees Species	SR	STRATUM Saplings Species	SR	STRATUM Shrubs Species	SR

STRATUM Ground layer Species	SR	STRATUM Species	SR	STRATUM Species	SR
Thistle	3				
Goldenrod	5				
Yellow Sweet Clover	8				
Wild Lettuce	2				
Clover	6				
Lesser Ragweed	2				
Fleabane	2				
Giant Ragweed	2				
Evening Primrose	4				
Cheat Grass	3				
Sleepy Catchfly	2				
Mustard	2				

COMMUNITY TYPES

Forests	Prairies	Savanna	Wetland	Surface Water
Upland Forest	Prairie		Marsh	Lake Michigan
Sand Forest	Sand Prairie	Savanna	Swamp	Reservoir
Floodplain Forest	Gravel Prairie	Savanna	Bog	Impoundment
Flatwoods	Hill Prairie	Sand Savanna	Fen	Stream
	Shrub Prairie	Barren	Sedge Meadow	Natural Lake

Cropland Forageland Succesional Field Developed Land

STRATUM RANKING FORM

Site Horseshoe Lake Recreation Area Transect Set I Census Stop # (2)-21 Page 2 of 21

Observer L. G. Nico Community Type of Census Stop Successional Field: early (surrounded by forest strip, lake; mowed in mid-June) Date 2 July 83

Stratum Ranking

9 Dominant in essentially pure stand, no other species exceed SR2

8 Dominant, next lower species cannot exceed SR6

7 Codominants, two or possibly three species sharing dominance

6 Codominants, several species sharing dominance

5 Intermediate, common species with moderate cover

4 Intermediate, common species with low to moderate cover

3 Intermediate, several plants with minimal cover

2 Subordinate, two to several plants of inconsequential cover

1 Subordinate, only one individual noted

STRATUM Trees Species	SR	STRATUM Saplings Species	SR	STRATUM Shrubs Species	SR
				E. Cottonwood	2
				Multiflora Rose	2
				Elderberry	2
				Blackberry Brambles	2
				Silver Maple	2

STRATUM Ground layer Species	SR	STRATUM Species	SR	STRATUM Species	SR
Goldenrod	8				
Trumpet Creeper	3				
Evening Primrose	3				
Dogbane	2				
Broom Sedge	3				
Nodding Thistle	2				
Wild Grape	2				
Cheat Grass	5				

COMMUNITY TYPES

Forests	Prairies	Savanna	Wetland	Surface Water
Upland Forest	Prairie		Marsh	Lake Michigan
Sand Forest	Sand Prairie	Savanna	Swamp	Reservoir
Floodplain Forest	Gravel Prairie	Sand Savanna	Bog	Impoundment
Flatwoods	Hill Prairie	Barren	Fen	Stream
	Shrub Prairie		Sedge Meadow	Natural Lake

Cropland Forageland Succesional Field Developed Land

STRATUM RANKING FORM

Site Horseshoe Lake Recreation Area Transect Set I Census Stop # (3) 21 Page 3 of 21

Observer L. G. Nico Community Type of Census Stop FLOODPLAIN FOREST Date 2 July 83

(NARROW STRIP - ADJACENT TO SUCCESSIONAL FIELD AND CROPLAND; LOW AREA - SOMETIMES WITH STANDING WATER)

Stratum Ranking

9 Dominant in essentially pure stand, no other species exceed SR2

8 Dominant, next lower species cannot exceed SR6

7 Codominants, two or possibly three species sharing dominance

6 Codominants, several species sharing dominance

5 Intermediate, common species with moderate cover

4 Intermediate, common species with low to moderate cover

3 Intermediate, several plants with minimal cover

2 Subordinate, two to several plants of inconsequential cover

1 Subordinate, only one individual noted

STRATUM Trees Species	SR	STRATUM Saplings Species	SR	STRATUM Shrubs Species	SR
E. COTTONWOOD	4	BLACK CHERRY	2		
BOX ELDER	3	SWAMP PRIVET	2		
ASH	3	WILD GRAPE	2		
BLACK CHERRY	3	SILVER MAPLE	2		
HACKBERRY	3	MULBERRY	2		
AMERICAN ELM	3	BOX ELDER	2		
WILD GRAPE	2				

STRATUM Ground layer Species	SR	STRATUM Species	SR	STRATUM Species	SR
ELDERBERRY	5				
COMPOSITE	3				
SWEET CICELY	2				
POKEWEED	2				
TRUMPET CREEPER	2				
VIOLET	2				
MORNING GLORY	2				

COMMUNITY TYPES

Forests	Prairies	Savanna	Wetland	Surface Water
Upland Forest	Prairie		Marsh	Lake Michigan
Sand Forest	Sand Prairie	Savanna	Swamp	Reservoir
Floodplain Forest	Gravel Prairie	Sand Savanna	Bog	Impoundment
Flatwoods	Hill Prairie	Barren	Fen	Stream
	Shrub Prairie		Sedge Meadow	Natural Lake

Cropland Forageland Succesional Field Developed Land

STRATUM RANKING FORM

Site Horseshoe Lake Recreation Area Transect Set I Census Stop # (4) 21 Page 4 of 21

Observer L. G. Nico Community Type of Census Stop WETLAND, MARSH – (BORDERS LAKE AND FOREST) Date 2 July 83

Stratum Ranking

9 Dominant in essentially pure stand, no other species exceed SR2

8 Dominant, next lower species cannot exceed SR6

7 Codominants, two or possibly three species sharing dominance

6 Codominants, several species sharing dominance

5 Intermediate, common species with moderate cover

4 Intermediate, common species with low to moderate cover

3 Intermediate, several plants with minimal cover

2 Subordinate, two to several plants of inconsequential cover

1 Subordinate, only one individual noted

STRATUM Trees Species	SR	STRATUM Saplings Species	SR	STRATUM Shrubs Species	SR

STRATUM Ground layer Species	SR	STRATUM Species	SR	STRATUM Species	SR
CATTAIL	9				
DUCKWEED (Lemna sp.)					

COMMUNITY TYPES

Forests	Prairies	Savanna	Wetland	Surface Water
Upland Forest	Prairie		Marsh	Lake Michigan
Sand Forest	Sand Prairie	Savanna	Swamp	Reservoir
Floodplain Forest	Gravel Prairie	Sand Savanna	Bog	Impoundment
Flatwoods	Hill Prairie	Barren	Fen	Stream
	Shrub Prairie		Sedge Meadow	Natural Lake

Cropland Forageland Succesional Field Developed Land

STRATUM RANKING FORM

Site Horseshoe Lake Recreation Area Transect Set I Census Stop # 5-22 Page 5 of 21

Observer L. G. Nico Community Type of Census Stop Developed Land - Date 2 July 83

Wooded Campground - (Borders forest, suc. field, cropland, and Lake); ground gets mowed,

Stratum Ranking

9 Dominant in essentially pure stand, no other species exceed SR2

8 Dominant, next lower species cannot exceed SR6

7 Codominants, two or possibly three species sharing dominance

6 Codominants, several species sharing dominance

5 Intermediate, common species with moderate cover

4 Intermediate, common species with low to moderate cover

3 Intermediate, several plants with minimal cover

2 Subordinate, two to several plants of inconsequential cover

1 Subordinate, only one individual noted

STRATUM Trees Species	SR	STRATUM Saplings Species	SR	STRATUM Shrubs Species	SR
Silver Maple	5				
Hackberry	2				
Ash	2				
Elm	2				
Pin Oak	2				
Persimmon	2				

STRATUM Ground layer Species	SR	STRATUM Species	SR	STRATUM Species	SR
Grass Spp.	8?				
White Clover	3				
Red Fescue	8				

COMMUNITY TYPES

Forests	Prairies		Wetland	Surface Water
Upland Forest	Prairie		Marsh	Lake Michigan
Sand Forest	Sand Prairie	Savanna	Swamp	Reservoir
Floodplain Forest	Gravel Prairie	Savanna	Bog	Impoundment
Flatwoods	Hill Prairie	Sand Savanna	Fen	Stream
	Shrub Prairie	Barren	Sedge Meadow	Natural Lake

Cropland Foragelands Succesional Field Developed Land

STRATUM RANKING FORM

Site Horseshoe Lake Recreation Area Transect Set I Census Stop # 6-21 Page 6 of 21

Observer L. G. Nico Community Type of Census Stop CROPLAND Date 2 July 83

Stratum Ranking

9 Dominant in essentially pure stand, no other species exceed SR2

8 Dominant, next lower species cannot exceed SR6

7 Codominants, two or possibly three species sharing dominance

6 Codominants, several species sharing dominance

5 Intermediate, common species with moderate cover

4 Intermediate, common species with low to moderate cover

3 Intermediate, several plants with minimal cover

2 Subordinate, two to several plants of inconsequential cover

1 Subordinate, only one individual noted

STRATUM Trees Species	SR	STRATUM Saplings Species	SR	STRATUM Shrubs Species	SR

STRATUM Ground layer Species	SR	STRATUM Species	SR	STRATUM Species	SR
CORN	9				

COMMUNITY TYPES

Forests	Prairies	Savanna	Wetland	Surface Water
Upland Forest	Prairie	Savanna	Marsh	Lake Michigan
Sand Forest	Sand Prairie	Sand Savanna	Swamp	Reservoir
Floodplain Forest	Gravel Prairie	Barren	Bog	Impoundment
Flatwoods	Hill Prairie		Fen	Stream
	Shrub Prairie		Sedge Meadow	Natural Lake

Cropland Foraageland Succesional Field Developed Land

STRATUM RANKING FORM

Site Horseshoe Lake Recreation Area Transect Set II Census Stop # (7) 21 Page 7 of 21

Observer L. G. Nico Community Type of Census Stop Floodplain Forest: (Borders Drainage Channel + Wetlands) Date 2 July 85

Stratum Ranking

9 Dominant in essentially pure stand, no other species exceed SR2

8 Dominant, next lower species cannot exceed SR6

7 Codominants, two or possibly three species sharing dominance

6 Codominants, several species sharing dominance

5 Intermediate, common species with moderate cover

4 Intermediate, common species with low to moderate cover

3 Intermediate, several plants with minimal cover

2 Subordinate, two to several plants of inconsequential cover

1 Subordinate, only one individual noted

STRATUM Trees Species	SR	STRATUM Saplings Species	SR	STRATUM Shrubs Species	SR
Willow	5	Honey Locust	2		
Persimmon	2	Mulberry	3		
Box Elder	5	American Elm	3		
Silver Maple	5				
Wild Grape	2				

STRATUM Ground layer Species	SR	STRATUM Species	SR	STRATUM Species	SR
Moneywort	3				
Aster ?	6				
Nettle	2				
Wild Rye	6				
Poison Ivy	3				

COMMUNITY TYPES

Forests	Prairies	Savanna	Wetland	Surface Water
Upland Forest	Prairie		Marsh	Lake Michigan
Sand Forest	Sand Prairie	Savanna	Swamp	Reservoir
Floodplain Forest	Gravel Prairie	Sand Savanna	Bog	Impoundment
Flatwoods	Hill Prairie	Barren	Fen	Stream
	Shrub Prairie		Sedge Meadow	Natural Lake

Cropland Foragelands Succesional Field Developed Land

STRATUM RANKING FORM

Site Horseshoe Lake Recreation Area Transect Set II Census Stop # (8) 21 Page 8 of 21

Observer L. G. Nico Community Type of Census Stop Successional Field Date 2 July 83

(Borders Riparian Forest and Hwy 111)

Stratum Ranking

9 Dominant in essentially pure stand, no other species exceed SR2

8 Dominant, next lower species cannot exceed SR6

7 Codominants, two or possibly three species sharing dominance

6 Codominants, several species sharing dominance

5 Intermediate, common species with moderate cover

4 Intermediate, common species with low to moderate cover

3 Intermediate, several plants with minimal cover

2 Subordinate, two to several plants of inconsequential cover

1 Subordinate, only one individual noted

STRATUM Trees Species	SR	STRATUM Saplings Species	SR	STRATUM Shrubs Species	SR
Willow	1	Box elder	3	Black Raspberry	3
Black Locust	4	Silver Maple	3		
		~~Silver Maple~~			
		Trumpet Creeper	3		
		Ash	2		
		Rough-leaved Dogwood	2		

STRATUM Ground layer Species	SR	STRATUM Species	SR	STRATUM Species	SR
Red Fescue	6				
Goldenrod	8				
Wild Grape	4				
Hedge Parsley	3				
Thistle	2				
Rumex sp.	2				

COMMUNITY TYPES

Forests	Prairies	Savanna	Wetland	Surface Water
Upland Forest	Prairie		Marsh	Lake Michigan
Sand Forest	Sand Prairie	Savanna	Swamp	Reservoir
Floodplain Forest	Gravel Prairie	Sand Savanna	Bog	Impoundment
Flatwoods	Hill Prairie	Barren	Fen	Stream
	Shrub Prairie		Sedge Meadow	Natural Lake

Cropland Foragelandd Succesional Field Developed Land

STRATUM RANKING FORM

Site Horseshoe Lake Recreation Area Transect Set II Census Stop # (9) 21 Page 9 of 21

Observer L. G. Niles Community Type of Census Stop WETLAND - (LAKE BORDER Date 2 July 83

Stratum Ranking

9 Dominant in essentially pure stand, no other species exceed SR2

8 Dominant, next lower species cannot exceed SR6

7 Codominants, two or possibly three species sharing dominance

6 Codominants, several species sharing dominance

5 Intermediate, common species with moderate cover

4 Intermediate, common species with low to moderate cover

3 Intermediate, several plants with minimal cover

2 Subordinate, two to several plants of inconsequential cover

1 Subordinate, only one individual noted

STRATUM Trees Species	SR	STRATUM Saplings Species	SR	STRATUM Shrubs Species	SR

STRATUM Ground layer Species	SR	STRATUM Species	SR	STRATUM Species	SR
Arrowhead (Sagittaria)	8				
Big Duckweed (Spirodella)	5				
Water Lily	6				

COMMUNITY TYPES

Forests	Prairies	Savanna	Wetland	Surface Water
Upland Forest	Prairie		Marsh	Lake Michigan
Sand Forest	Sand Prairie	Savanna	Swamp	Reservoir
Floodplain Forest	Gravel Prairie	Sand Savanna	Bog	Impoundment
Flatwoods	Hill Prairie	Barren	Fen	Stream
	Shrub Prairie		Sedge Meadow	Natural Lake

Cropland Foraageland Succesional Field Developed Land

STRATUM RANKING FORM

Site Horseshoe Lake Recreation Area Transect Set II Census Stop # 10-22 Page 10 of 22

Observer L. G. Vico Community Type of Census Stop Floodplain Forest-Riparian (bordering lake and Hwy 111) Date 2 July 83

Stratum Ranking

9 Dominant in essentially pure stand, no other species exceed SR2

8 Dominant, next lower species cannot exceed SR6

7 Codominants, two or possibly three species sharing dominance

6 Codominants, several species sharing dominance

5 Intermediate, common species with moderate cover

4 Intermediate, common species with low to moderate cover

3 Intermediate, several plants with minimal cover

2 Subordinate, two to several plants of inconsequential cover

1 Subordinate, only one individual noted

STRATUM Trees Species	SR	STRATUM Saplings Species	SR	STRATUM Shrubs Species	SR
Wild Grape	6	American Elm	3		
American Elm	4	Rough Dogwood	2		
Hackberry	3	Burr Oak	1		
Silver Maple	4				
E. Cottonwood	4				
Burr Oak	1				

STRATUM Ground layer Species	SR	STRATUM Species	SR	STRATUM Species	SR
Poison Ivy	8				
Saniculoum	5				
Blackberry	2				
Sedge	2				
Wild rye	2				
Jewelweed	5				
Wood Sorrel	2				
Virginia Creeper	3				
Nettle	2				

COMMUNITY TYPES

Forests	Prairies	Savanna	Wetland	Surface Water
Upland Forest	Prairie		Marsh	Lake Michigan
Sand Forest	Sand Prairie	Savanna	Swamp	Reservoir
Floodplain Forest	Gravel Prairie	Sand Savanna	Bog	Impoundment
Flatwoods	Hill Prairie	Barren	Fen	Stream
	Shrub Prairie		Sedge Meadow	Natural Lake

Cropland Foragelands Succesional Field Developed Land

STRATUM RANKING FORM

Site Horseshoe Lake Recreation Area Transect Set II Census Stop # (11) 22 Page 11 of 22

Observer L. G. Vico Community Type of Census Stop Developed LAND - Dayuse Area, Mowed LAWN (Borders LAKE, WHEAT Field, Successional Field, Developed LAND) Date 2 July 83

Stratum Ranking

9 Dominant in essentially pure stand, no other species exceed SR2

8 Dominant, next lower species cannot exceed SR6

7 Codominants, two or possibly three species sharing dominance

6 Codominants, several species sharing dominance

5 Intermediate, common species with moderate cover

4 Intermediate, common species with low to moderate cover

3 Intermediate, several plants with minimal cover

2 Subordinate, two to several plants of inconsequential cover

1 Subordinate, only one individual noted

STRATUM Trees Species	SR	STRATUM Saplings Species	SR	STRATUM Shrubs Species	SR

STRATUM Ground layer Species	SR	STRATUM Species	SR	STRATUM Species	SR
Grasses	8				

COMMUNITY TYPES

Forests	Prairies	Savanna	Wetland	Surface Water
Upland Forest	Prairie	Savanna	Marsh	Lake Michigan
Sand Forest	Sand Prairie	Sand Savanna	Swamp	Reservoir
Floodplain Forest	Gravel Prairie	Barren	Bog	Impoundment
Flatwoods	Hill Prairie		Fen	Stream
	Shrub Prairie		Sedge Meadow	Natural Lake

Cropland Foragelands Succesional Field Developed Land

STRATUM RANKING FORM

Site Horseshoe Lake Recreation Area Transect Set II Census Stop # (12)-22 Page 12 of 22

Observer L. G. Vico Community Type of Census Stop Lake, Horseshoe (Borders Successional field Date 2 July 83

Stratum Ranking

9 Dominant in essentially pure stand, no other species exceed SR2

8 Dominant, next lower species cannot exceed SR6

7 Codominants, two or possibly three species sharing dominance

6 Codominants, several species sharing dominance

5 Intermediate, common species with moderate cover

4 Intermediate, common species with low to moderate cover

3 Intermediate, several plants with minimal cover

2 Subordinate, two to several plants of inconsequential cover

1 Subordinate, only one individual noted

STRATUM Trees Species	SR	STRATUM Saplings Species	SR	STRATUM Shrubs Species	SR
—		—		—	

STRATUM Ground layer Species	SR	STRATUM Species	SR	STRATUM Species	SR
—		—		—	

COMMUNITY TYPES

Forests	Prairies	Savanna	Wetland	Surface Water
Upland Forest	Prairie	Savanna	Marsh	Lake Michigan
Sand Forest	Sand Prairie	Sand Savanna	Swamp	Reservoir
Floodplain Forest	Gravel Prairie	Barren	Bog	Impoundment
Flatwoods	Hill Prairie		Fen	Stream
	Shrub Prairie		Sedge Meadow	Natural Lake

Cropland Forageland Succesional Field Developed Land

STRATUM RANKING FORM

Site Horseshoe Lake Recreation Area Transect Set III Census Stop # 13 22 Page 13 of 22

Observer L. G. Vice Community Type of Census Stop WETLAND - (Border Lake, Cropland, Forest) Date 2 July 83

Stratum Ranking

9 Dominant in essentially pure stand, no other species exceed SR2

8 Dominant, next lower species cannot exceed SR6

7 Codominants, two or possibly three species sharing dominance

6 Codominants, several species sharing dominance

5 Intermediate, common species with moderate cover

4 Intermediate, common species with low to moderate cover

3 Intermediate, several plants with minimal cover

2 Subordinate, two to several plants of inconsequential cover

1 Subordinate, only one individual noted

STRATUM Trees Species	SR	STRATUM Saplings Species	SR	STRATUM Shrubs Species	SR
		Willow	3	Buttonbush	2

STRATUM Ground layer Species	SR	STRATUM Species	SR	STRATUM Species	SR
Giant Bullrush	2				
Cattail	6				
Broad-leaved Arrowhead	7				
Rose Mallow	2				
Duckweed (Lemna sp)	4				
Grasses	6				
Big Duckweed (Spirodela)	2				

COMMUNITY TYPES

Forests	Prairies	Savanna	Wetland	Surface Water
Upland Forest	Prairie		Marsh	Lake Michigan
Sand Forest	Sand Prairie		Swamp	Reservoir
Floodplain Forest	Gravel Prairie	Savanna	Bog	Impoundment
Flatwoods	Hill Prairie	Sand Savanna	Fen	Stream
	Shrub Prairie	Barren	Sedge Meadow	Natural Lake

Cropland Forageland Succesional Field Developed Land

STRATUM RANKING FORM

Site Horseshoe Lake Recreation Area Transect Set III Census Stop # (14) 21 Page 14 of 21

Observer L. G. Vice Community Type of Census Stop CROPLAND - (borders cropland, forest strip, wetland) Date 2 July 83

Stratum Ranking

9 Dominant in essentially pure stand, no other species exceed SR2

8 Dominant, next lower species cannot exceed SR6

7 Codominants, two or possibly three species sharing dominance

6 Codominants, several species sharing dominance

5 Intermediate, common species with moderate cover

4 Intermediate, common species with low to moderate cover

3 Intermediate, several plants with minimal cover

2 Subordinate, two to several plants of inconsequential cover

1 Subordinate, only one individual noted

STRATUM Trees Species	SR	STRATUM Saplings Species	SR	STRATUM Shrubs Species	SR

STRATUM Ground layer Species	SR	STRATUM Species	SR	STRATUM Species	SR
WHEAT 7	[illegible]				
CORN 7	[illegible]				

COMMUNITY TYPES

Forests	Prairies	Savanna	Wetland	Surface Water
Upland Forest	Prairie		Marsh	Lake Michigan
Sand Forest	Sand Prairie	Savanna	Swamp	Reservoir
Floodplain Forest	Gravel Prairie	Sand Savanna	Bog	Impoundment
Flatwoods	Hill Prairie	Barren	Fen	Stream
	Shrub Prairie		Sedge Meadow	Natural Lake

Cropland Foragelands Succesional Field Developed Land

STRATUM RANKING FORM

Site Horseshoe Lake Recreation Area Transect Set III Census Stop # (15) 27 Page 15 of 27

Observer L. G. Vico Community Type of Census Stop Successional Field (borders Cropland, Lake) Date 2 July 83

Stratum Ranking

9 Dominant in essentially pure stand, no other species exceed SR2

8 Dominant, next lower species cannot exceed SR6

7 Codominants, two or possibly three species sharing dominance

6 Codominants, several species sharing dominance

5 Intermediate, common species with moderate cover

4 Intermediate, common species with low to moderate cover

3 Intermediate, several plants with minimal cover

2 Subordinate, two to several plants of inconsequential cover

1 Subordinate, only one individual noted

STRATUM Trees Species	SR	STRATUM Saplings Species	SR	STRATUM Shrubs Species	SR
Walnut	1	Mimosa	2		
Mulberry	2	Hackberry	3		
Willow	3	Paper Mulberry	3		
Red Cedar	1	Ash	2		
		Silver Maple	2		

STRATUM Ground layer Species	SR	STRATUM Species	SR	STRATUM Species	SR
Nodding Thistle	2				
Mimosa	2				
Trumpet Creeper	6				
Wild Grape	2				
Goldenrod	6				
White Mulberry	3				
Wild Rye	2				
Blue Grass	3				
Rose	4				
Erigeron (Fleabane)	2				

COMMUNITY TYPES

Forests	Prairies	Savanna	Wetland	Surface Water
Upland Forest	Prairie		Marsh	Lake Michigan
Sand Forest	Sand Prairie		Swamp	Reservoir
Floodplain Forest	Gravel Prairie	Savanna	Bog	Impoundment
Flatwoods	Hill Prairie	Sand Savanna	Fen	Stream
	Shrub Prairie	Barren	Sedge Meadow	Natural Lake

Cropland Foraageland Succesional Field Developed Land

STRATUM RANKING FORM

Site Horseshoe Lake Recreation Area Transect Set III Census Stop # (16) 22 Page 16 of 22

Observer L. G. Nico Community Type of Census Stop Wetland - (Bordering Cropland, - corn + wheat) Date 2 July 85

Stratum Ranking

9 Dominant in essentially pure stand, no other species exceed SR2

8 Dominant, next lower species cannot exceed SR6

7 Codominants, two or possibly three species sharing dominance

6 Codominants, several species sharing dominance

5 Intermediate, common species with moderate cover

4 Intermediate, common species with low to moderate cover

3 Intermediate, several plants with minimal cover

2 Subordinate, two to several plants of inconsequential cover

1 Subordinate, only one individual noted

STRATUM Trees Species	SR	STRATUM Saplings Species	SR	STRATUM Shrubs Species	SR
Willow	2			Willow	2
E. Cottonwood	1				

STRATUM Ground layer Species	SR	STRATUM Species	SR	STRATUM Species	SR
Cocklebur	2				
Sedge	7				
Water Smartweed	5				
Cattails	2				
Wild Sweet Potato vine	2				
Water Hyssop	7				
~~Water~~ Speedwell					
Clammy Hedge Hyssop					

COMMUNITY TYPES

Forests	Prairies	Savanna	Wetland	Surface Water
Upland Forest	Prairie		Marsh	Lake Michigan
Sand Forest	Sand Prairie	Savanna	Swamp	Reservoir
Floodplain Forest	Gravel Prairie	Sand Savanna	Bog	Impoundment
Flatwoods	Hill Prairie	Barren	Fen	Stream
	Shrub Prairie		Sedge Meadow	Natural Lake

Cropland Foragelands Succesional Field Developed Land

STRATUM RANKING FORM

Site Horseshoe Lake Recreation Area Transect Set III Census Stop # 17-22 Page 17 of 22

Observer L. G. Wiso Community Type of Census Stop CROPLAND Date 2 July 83

(BORDERS SUCCESSIONAL FIELD, WETLAND)

Stratum Ranking

9 Dominant in essentially pure stand, no other species exceed SR2

8 Dominant, next lower species cannot exceed SR6

7 Codominants, two or possibly three species sharing dominance

6 Codominants, several species sharing dominance

5 Intermediate, common species with moderate cover

4 Intermediate, common species with low to moderate cover

3 Intermediate, several plants with minimal cover

2 Subordinate, two to several plants of inconsequential cover

1 Subordinate, only one individual noted

STRATUM Trees Species	SR	STRATUM Saplings Species	SR	STRATUM Shrubs Species	SR

STRATUM Ground layer Species	SR	STRATUM Species	SR	STRATUM Species	SR
Soybeans	7				
Corn	7				

COMMUNITY TYPES

Forests	Prairies	Savanna	Wetland	Surface Water
Upland Forest	Prairie		Marsh	Lake Michigan
Sand Forest	Sand Prairie	Savanna	Swamp	Reservoir
Floodplain Forest	Gravel Prairie	Sand Savanna	Bog	Impoundment
Flatwoods	Hill Prairie	Barren	Fen	Stream
	Shrub Prairie		Sedge Meadow	Natural Lake

Cropland Foragelands Succesional Field Developed Land

STRATUM RANKING FORM

Site Horseshoe Lake Recreation Area Transect Set III Census Stop # 10-27 Page 18 of 21

Observer L. G. Vico Community Type of Census Stop Successional Field - Former Homesite (borders Cropland) Date 2 July 83

Stratum Ranking

9 Dominant in essentially pure stand, no other species exceed SR2

8 Dominant, next lower species cannot exceed SR6

7 Codominants, two or possibly three species sharing dominance

6 Codominants, several species sharing dominance

5 Intermediate, common species with moderate cover

4 Intermediate, common species with low to moderate cover

3 Intermediate, several plants with minimal cover

2 Subordinate, two to several plants of inconsequential cover

1 Subordinate, only one individual noted

STRATUM Trees Species	SR	STRATUM Saplings Species	SR	STRATUM Shrubs Species	SR
Chinese Elm	2	American Elm	2	Multiflora Rose	3
Sycamore	1	Elderberry	2		
Peach	1	Paper Mulberry	4		
Willows	1	Hackberry	1		
		Black Walnut	1		
		Chinese Elm	2		
		Mulberry	2		

STRATUM Ground layer Species	SR	STRATUM Ground Layer Species	SR	STRATUM Species	SR
Evening Primrose	3	Cocklebur	2		
Goldenrod	6	Fleabane	2		
Yellow Sweet Clover	3	Black-eyed Susan	2		
Nodding Thistle	3				
Black Raspberry	3				
Field Bindweed	4				
Grass, Blue?	5				
Chicory	2				
Rumex sp	2				
Common Milkweed	2				
Morning Glory	2				
Giant Ragweed	3				

COMMUNITY TYPES

Forests	Prairies	Savanna	Wetland	Surface Water
Upland Forest	Prairie		Marsh	Lake Michigan
Sand Forest	Sand Prairie	Savanna	Swamp	Reservoir
Floodplain Forest	Gravel Prairie	Savanna	Bog	Impoundment
Flatwoods	Hill Prairie	Sand Savanna	Fen	Stream
	Shrub Prairie	Barren	Sedge Meadow	Natural Lake

Cropland Forageland Succesional Field Developed Land

STRATUM RANKING FORM

Site Horseshoe Lake Recreation Area Transect Set III Census Stop # 19-22 Page 19 of 21

Observer L. G. Rico Community Type of Census Stop LAKE - Horseshoe (Borders Cropland, Dev. LAND, Date 2 July 83

Stratum Ranking

9 Dominant in essentially pure stand, no other species exceed SR2

8 Dominant, next lower species cannot exceed SR6

7 Codominants, two or possibly three species sharing dominance

6 Codominants, several species sharing dominance

5 Intermediate, common species with moderate cover

4 Intermediate, common species with low to moderate cover

3 Intermediate, several plants with minimal cover

2 Subordinate, two to several plants of inconsequential cover

1 Subordinate, only one individual noted

STRATUM Trees Species	SR	STRATUM Saplings Species	SR	STRATUM Shrubs Species	SR
—		—		—	

STRATUM Ground layer Species	SR	STRATUM Species	SR	STRATUM Species	SR
—		—		—	

COMMUNITY TYPES

Forests	Prairies	Savanna	Wetland	Surface Water
Upland Forest	Prairie	Savanna	Marsh	Lake Michigan
Sand Forest	Sand Prairie	Sand Savanna	Swamp	Reservoir
Floodplain Forest	Gravel Prairie	Barren	Bog	Impoundment
Flatwoods	Hill Prairie		Fen	Stream
	Shrub Prairie		Sedge Meadow	Natural Lake

Cropland Forageland Succesional Field Developed Land

STRATUM RANKING FORM

Site Horseshoe Lake Recreation Area Transect Set III Census Stop # (20) 21 Page 18 of 21

Observer L. G. Vigo Community Type of Census Stop Successional Field Date 2 July 83

Homesite (Borders Cropland, Wetland, And)

Stratum Ranking

9 Dominant in essentially pure stand, no other species exceed SR2

8 Dominant, next lower species cannot exceed SR6

7 Codominants, two or possibly three species sharing dominance

6 Codominants, several species sharing dominance

5 Intermediate, common species with moderate cover

4 Intermediate, common species with low to moderate cover

3 Intermediate, several plants with minimal cover

2 Subordinate, two to several plants of inconsequential cover

1 Subordinate, only one individual noted

STRATUM Trees Species	SR	STRATUM Saplings Species	SR	STRATUM Shrubs Species	SR
Silver Maple	4	Tree of Heaven	5	Multiflora Rose	3
American Elm	4	Hackberry	2	Japanese Honeysuckle	3
Tree of Heaven	5	American Elm	3		
Apple	1	Silver Maple	3		

STRATUM Ground layer Species	SR	STRATUM Species	SR	STRATUM Species	SR
Goldenrod	6				
Japanese Honeysuckle	5				
Mint	3				
Blue Grass	3				
Sensitive Fern	2				
Pokeweed	2				
Iris	2				

COMMUNITY TYPES

Forests	Prairies	Savanna	Wetland	Surface Water
Upland Forest	Prairie		Marsh	Lake Michigan
Sand Forest	Sand Prairie	Savanna	Swamp	Reservoir
Floodplain Forest	Gravel Prairie	Sand Savanna	Bog	Impoundment
Flatwoods	Hill Prairie	Barren	Fen	Stream
	Shrub Prairie		Sedge Meadow	Natural Lake

Cropland Forageland Succesional Field Developed Land

STRATUM RANKING FORM

Site Horseshoe Lake Recreation Area Transect Set III Census Stop # 21-21 Page 21 of 21

Observer L. C. Niles Community Type of Census Stop Successional Field - Former Homesite (Builders Cropland + Homesites) Date 2 July 83

Stratum Ranking

9 Dominant in essentially pure stand, no other species exceed SR2

8 Dominant, next lower species cannot exceed SR6

7 Codominants, two or possibly three species sharing dominance

6 Codominants, several species sharing dominance

5 Intermediate, common species with moderate cover

4 Intermediate, common species with low to moderate cover

3 Intermediate, several plants with minimal cover

2 Subordinate, two to several plants of inconsequential cover

1 Subordinate, only one individual noted

STRATUM Trees Species	SR	STRATUM Saplings Species	SR	STRATUM Shrubs Species	SR
E. Cottonwood	3	Rough-leaved Dogwood	3	Multiflora Rose	4
Silver Maple	2	Chinese Elm	8	Weigela	1
Hackberry	2	Mulberry	3		
		Silver Maple	2		
		Hackberry	2		

STRATUM Ground layer Species	SR	STRATUM Ground Layer Species	SR	STRATUM Species	SR
Timothy Grass	6	Milfoil	2		
Red Fescue	6	Rough-fruited Cinquefoil	2		
Red Top?	2	Paper Mulberry	2		
Goldenrod	3				
Common Milkweed	2				
Yellow Sweet Clover	4				
Cheat Grass	6				
Thistle	2				
Mullein	2				
Poison Ivy	4				
Wild Grape	3				
Black-eyed Susan	2				

COMMUNITY TYPES

Forests	Prairies	Savanna	Wetland	Surface Water
Upland Forest	Prairie		Marsh	Lake Michigan
Sand Forest	Sand Prairie	Savanna	Swamp	Reservoir
Floodplain Forest	Gravel Prairie	Sand Savanna	Bog	Impoundment
Flatwoods	Hill Prairie	Barren	Fen	Stream
	Shrub Prairie		Sedge Meadow	Natural Lake

Cropland Forageland Succesional Field Developed Land

APPENDIX IV

Original Field Sheets

SITE Horseshoe Lake Rec. Area TRANSECT SET 1 ; STOP NUMBERS: 1 to 6. Page 1 of 1 (for this date)

OBSERVER Leo G. Nico

SUNRISE 5:42

	TIME	TEMP.	WIND CODE	SKY
Starting:	5:27	61 °F	3	2
Ending:	7:55	°F 21°C	3	2

DATE: 5-25-83

Print the correct STOP NUMBER in the designated space above each column.

SPECIES	#1		#2		#3		#4		#5		#6		#—		#—		#—		#—		#—		#—	
Red Wing Blkbird	4	10	2	2	2		9	7	10		23	8												
Horned Lark	1																							
Killdeer	3										1	2												
Grackle			1				2	4			2	5												
Cowbird					3						1													
Blue Jay										1	1													
Robin	1						1		1	1														
Cardinal			1		2	1	1			2	1		1											
Bobwhite	3			2	1		1		1	1	1													
Warbling Vireo	1				1		1																	
Barn Swallow					3			3			2													
E. Pewee ?							1																	
Mallard	1																							
Bank Swallow		3	11	3								2												
M. Dove									1															
Com Yell-th			2				1	1			1													
Ind. Bunting			1	2	1		3		1		2													
Field Sparrow			1	2	3																			
Red-eyed Vireo			1		1	1	1			1														
Chimney Swift				1									1											
Titmouse					2				1	1														
Chat				1																				
Br Thrasher					1						1													
Purple Martin			1																					
Goldfinch				1	4				2															
Mallard					3						2													
Red-Bellied Wdpk					1								1											
House Finch					3																			
Chickadee					4	1	3																	
Willow Flycatcher					1																			
Towhee					1																			
~~[illegible]~~																								
Blk-th Green Warbler							1																	

Note: The left space in each column is for use in recording birds detected during the transect between points; the right space is for use in recording birds detected during the 10-minute stop. Use appropriate spaces on the reverse side for recording birds flying over or through the study area which do not stop in the study area.

SPECIES	#4	#5	#6	#__	#__	#__	#__	#__	#__	#__	#__	#__
Great Blue Heron		1										
Gulls	4											
Wood Pewee		2										
Starling		2	2									
Yel. Billed Cuckoo		1										
House Sparrow		1										
Flicker			1									
Meadowlark			1									
Crow			1									
Cattle Egret				2								

Utilize this portion of the data sheet to record those species observed flying over or through the study area, but not stopping in the study area or those species not a typical part of the habitat type being censused.

SITE Horseshoe Lake Rec. Area TRANSECT SET II ; STOP NUMBERS: 7 to 12.

Page 1 of 1 (for this date)

OBSERVER Leo G. Nico

	TIME	TEMP.	WIND CODE	SKY
Starting:	5:26 am	52 °F	2	0
Ending:	8:08 AM	°F	3	0

DATE: 5-26-83

Print the correct STOP NUMBER in the designated space above each column.

SPECIES	#7		#8		#9		#10		#11		#12		#—		#—		#—		#—		#—	
Red Wing			4	9	15	6	13	4	13	7	6	7										
Grackle		2	2		7		2	2	16	3	5	2										
Cowbirds			2		1																	
Cardinal		1	4	1	1		2	1	1		1											
I Bunting		1	2	1	2		1		1													
Robin		1	4		3		3	1	2	2												
Night Hawk	2																					
M. Dove		1	2				3			1	2											
Empidonax Flycatch					1																	
Chickadee		1	1		2																	
Blue-Gray Gnat			2																			
Titmouse			1																			
Cm Yellow Vert			2	1																		
Red-eyed Vireo		1																				
Cedar Waxwing			1						1													
Warbling Vireo			1		1		2	1	2	1*												
Sing Sparrow			1						[illegible]	1	1											
Bobwhite			1						[illegible]	2												
Gold Finch				2			1						1									
Field Sp					2																	
Carolina Wren					1																	
B Jay					2		1															
Mallard					2	8			3			1										
Starling						3	1		12		9											
Blk Cr. Night Her*						2						1										
Chimney Swift							2	1														
Chat									1													
H Sparrow									4													
Meadowlark									1	1												
E. Kingbird										2	1											
Killdeer										1												
Barn Swallow										2		1										
Dickcissel										1												

Note: The left space in each column is for use in recording birds detected during the transect between points; the right space is for use in recording birds detected during the 10-minute stop. Use appropriate spaces on the reverse side for recording birds flying over or through the study area which do not stop in the study area.

* adjacent riparia

SPECIES	#12	#	#	#	#	#	#	#	#	#	#	#
Eastern Tree Sp.	2											
Flicker	2											
Fish Crow	1											
Mockingbird		1										

Utilize this portion of the data sheet to record those species observed flying over or through the study area, but not stopping in the study area or those species not a typical part of the habitat type being censused.

SITE Horseshoe Lake Rec. Area TRANSECT SET III ; STOP NUMBERS: 13 to 21 . Page 1 of 1 (for this date)

OBSERVER Leo G. Nico

	TIME	TEMP.	WIND CODE	SKY
Starting:	5:40	62 °F	3	1
Ending:	9:40	°F	3	1

DATE: 5-29-83

Print the correct STOP NUMBER in the designated space above each column.

SPECIES	#13		#14		#15		#16		#17		#18		#19		#20		#21		#Rd		#___		#___	
R.W. Blackbird	9	7	5	11	16	2	7	7	15	7	5	2			28	3	5	2						
Grackle	9			4	3		6		1	1		2					9	5	3					
Starling	5											2	1						4	4				
Cowbird	2																							
E. Bluebird	2				3	1	2				1	3				3	1	1		1				
Cardinal	4				2	2	2				3	1	1		1	3		1	1	1				
Robin	3			1	2		4			3		1			1	1	1	1		2				
Song Sparrow	1																							
Com. Yellowthroat	3				2	2	1					1							1					
Warbling Vireo	4		1				1				1						1	1		2				
N. Oriole	1																							
Br. Thrasher	1											1	1				1							
Killdeer	1								2	2	1		1				2							
Mourning Dove	2						1					1					2	2						
Y.-Billed Cuckoo	1		1		1						1								1					
Barn Swallow	1			1			1	3	1	2														
Wood Pewee	1																							
Red-eyed Vireo	1																							
Chickadee	1				1						1						1	1						
Goldfinch	1						1				2	1				1				4				
G. Cr. Flycatcher	1																							
X Yellow Warbler	1												3		4									
Mallard	3	2			13											2	1							
White-eyed Vireo					1						1													
Blk.-Cr. Night-Heron					1									1										
R. Th. Hummingbird					1													1						
Chat						1																		
Carolina Wren						1																		
Chimney Swift					1	1			1									1	3					
Blue Jay							2				2					1								
Crow							3																	
Mourning Dove							2																	
Red Tail Hawk								1																
Horned Lark									2	1														

Note: The left space in each column is for use in recording birds detected during the transect between points; the right space is for use in recording birds detected during the 10-minute stop. Use appropriate spaces on the reverse side for recording birds flying over or through the study area which do not stop in the study area.

Outside transects

SPECIES	#17	#18	#19	#20	#21	#	#	#	#	#	#	#
Snowy Egret	2											
Great egret	10											
Little Blue	3		1		1							
Blue-Winged Teal	1											
Red-billed Widgeon		1										
Robin		1			1							
Great Blue Heron			1	1								
Green-backed Heron				1								
European Tree Sparrow				7	1							
House Sparrow						2						
Meadowlark					2							

Utilize this portion of the data sheet to record those species observed flying over or through the study area, but not stopping in the study area or those species not a typical part of the habitat type being censused.

SITE Horseshoe Lake Rec. Area TRANSECT SET III ; STOP NUMBERS: 12 to ___.

Page 1 of 1 (for this date)

OBSERVER Leo G. Nico

	TIME	TEMP.	WIND CODE	SKY
Starting:	5:45	51 °F	3	0
Ending:	9:51	59 °F	4	0

DATE: 5-30-83

Print the correct STOP NUMBER in the designated space above each column.

SPECIES	#13		#14		#15		#16		#17		#18		#19		#20		#21		End Rd Mullens					
R Wing	7	10	3	5	5	2	11	4	20	4	3	2			28	3	3	1						
Grackle	13				1	2	3	2		1	2	4		2			19	3						
Starling	8																2							
Cow Yellowthrt	1				1		1					2												
Cowbird							2										1							
Horned Lark									1	2														
Bobwhite	2				2	2	1				2	3			1		4	2						
Mourning Dove	1								2			1					2	1						
Y-billed Cuckoo	1		1		1	1												1						
Cardinal	5		1		4	2	6		1		3	3				2	2	2						
E. Towhee	2				4	2	2				1					1	4	1	1					
Goldfinch	4		1		9	1	2				1	1				1		1						
Mallard	2	4*		2					1					3	1		5							
Killdeer	1						1		1	2	1						2			1				
Spotted Sandpiper									1															
Flicker	1																							
Oak Cr. Night H	1	1			1									2										
Kestrel									1															
Chickadee	1										3													
Warbling Vireo	4		1		1						1						1	1						
Red-eyed Vireo	2																							
Chimney Swift	2				1		1				1	1	3			2								
Barn Swallow	1			1		1		1		1					1									
House Wren	1																							
Kingfisher	1		1																					
Yellow Bellied	1																							
Chat						1																		
Catbirds	2																							
N Oriole			1																					
Blue Wing Teal					1				5															
Spotted Sandpiper					1																			
Yellow Warbler					16																			
Carolina Wren						1																		
Mockingbird							1																	

Note: The left space in each column is for use in recording birds detected during the transect between points; the right space is for use in recording birds detected during the 10-minute stop. Use appropriate spaces on the reverse side for recording birds flying over or through the study area which do not stop in the study area.

*1 a new E. Wing 95-5

2 of ducks

SPECIES	#16 (17)	#17 (18)	#18 (19)	#19 (20)	#20 (21)	#	#	#	#	#	#	#
Great Blue	1											
Green Heron	1											
Snowy Egret	1											
Little Blue H	1				2							
Crow		3	1									
Red Bellied Woodpk		1										
Red-Tail Hawk		1										
Dickcissel		1										
Chat			1									
B. Thrasher			1		1							
E. Tree Sparrow			6		2							
Blue Jay				1								
Meadowlark				1	1							
Catbird				1								
Wh. eyed Vireo				1								
Cattle Egret					1							
Robin					34	1						
House Sparrow					1							
Bell's Vireo						1						

Utilize this portion of the data sheet to record those species observed flying over or through the study area, but not stopping in the study area or those species not a typical part of the habitat type being censused.

SITE Horseshoe Lake Rec. Area TRANSECT SET I ; STOP NUMBERS: 1 to 6 .

Page 1 of 1 (for this date)

OBSERVER Les G. Nico

	TIME	TEMP.	WIND CODE	SKY
Starting:	5:33	51 °F	2	0
Ending:	8:05	57 °F	2	0

DATE: 6-1-83

Print the correct STOP NUMBER in the designated space above each column.

SPECIES	#1		#2		#3		#4		#5		#6		#—		#—		#—		#—		#—	
Cattle Egret	3																					
Warbling Vireo	1										2											
Yel. billed cuckoo					1		1															
Red wing blackbird	4	17	4	1	10		15	14	10	1	21	2										
Grackle	3								3		3	11										
Starling	2									2	5											
H. Sparrow	3																					8
H. Lark	1	2																				3
M. Dove		1																				1
Mallard	2						3	1				2	1									
Killdeer	1	1	1								1	2										
Dickcissel		1																				
Bobwhite		1	1		2		1			1												
Red-bellied woodpk			1		1																	
BWCL Night Heron			2		5																	
Cam Yel Throat				1	1		1	1														
Cardinal			1	1	2	2			1	1												
Gold finch			2	1	5		1															
L Bunting				2	2	1	2															
Field Sparrow				3	4																	
Chat				1			1															
E. Pewee			1				1			1												
Royal Vireo			1		2	2	2				1											
Flicker					1																	
Crow				1									1									
H. Wren					2																	
Downy					1																	
Chimney swift					1		1			1		3										
Chickadee					1								1									
Willow Flycatcher					1																	
Titmouse					1		1															
Catbird					1																	
Wood Duck					1																	
Robin						1																

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Lake

SPECIES	#3	#4	#5	#6	#__	#__	#__	#__	#__	#__	#__	#__
Brown Thrasher	1											
Red-tailed Hawk		2										
Finch		4										
B[illegible]		1	2									
Barn Swallow		2		1 1								
Spotted Sandpiper		21										
[illegible]		1										
X B.G. [illegible]			2									
Bank Swallow				9	3							

Utilize this portion of the data sheet to record those species observed flying over or through the study area, but not stopping in the study area or those species not a typical part of the habitat type being censused.

SITE Horseshoe Lake Rec. Area TRANSECT SET II ; STOP NUMBERS: 7 to 12.

Page 1 of 1 (for this date)

OBSERVER Leo G. Nico

	TIME	TEMP.	WIND CODE	SKY
Starting:	5:27	65 °F	3	2
Ending:	8:00	65 °F	3	2

DATE: 6-2-83

Print the correct STOP NUMBER in the designated space above each column.

SPECIES	#7		#8		#9		#10		#11		#12		#—		#—		#—		#—		#—		#—	
R Wing Blkbird			12	7	10	6	10	3	9	3	14													
Grackle		2	9	2	16		2	3	16	6														
Starling			1		2		2		9	7	15										15	1		
Tit		1	1																		9	11		
Com Yellthrt			2		1																			
Warbling Vireo			2				2	1	5	1														
Nighthawk	1																							
Song Sparrow			1								1													
Field Sparrow				2																				
Cardinal		1	1	1	1		2		2		1													
Indigo Bunting		1	6		1		1	2																
Goldfinch				1	1	2			1	1														
Robin		1	3		2		2		5	1	5													
Red-billed Wdpkr		1																						
Blue Gray Gnat		1																						
Red-eyed Vireo		1							1															
Cowbirds				2																				
Mallard					7	8+			7			3												
Chimney Swift					3		1		1															
Killdeer					1																			
B. Jay					2																			
N Oriole					1				1															
Chickadee						1		2																
Red-Billed Cuckoo						1																		
Yel-G Night-Heron						1																		
Barn Swallows						2																		
Downy Wdpkr							1	1																
Flicker							1				1													
Red Dickcissel										1														
Catbird									1															
Cedar Waxwing									2															
Bobwhite									1	1														
E.T. Sparrow									3	1														
Meadowlark									1															

Note: The left space in each column is for use in recording birds detected during the transect between points; the right space is for use in recording birds detected during the 10-minute stop. Use appropriate spaces on the reverse side for recording birds flying over or through the study area which do not stop in the study area.

see sheet for stop 9 + ♀ ♂

SPECIES	#12	#__	#__	#__	#__	#__	#__	#__	#__	#__	#__	#__
E. Kingbird	2											
Crow	1											
Wood Ducks	2											
H Sparrow	1											
Bird Egret		T										

Utilize this portion of the data sheet to record those species observed flying over or through the study area, but not stopping in the study area or those species not a typical part of the habitat type being censused.

	#11
Rock dove	6

SITE Horseshoe Lake Rec. Area TRANSECT SET I ; STOP NUMBERS: 1 to 6. Page 1 of 1 (for this date)

OBSERVER Leo G. Nizo

	TIME	TEMP.	WIND CODE	SKY
Starting:	5:39	62 °F	1	0
Ending:	8:39	69 °F	2	0

DATE: 6-4-83

Print the correct STOP NUMBER in the designated space above each column.

SPECIES	#1		#2		#3		#4		#5		#6		#—		#—		#—		#—		#—	
RW Blkbird	12	10	6		11		20	10		4		7										
Grackle	1	1	5				2															
Starling	3	3			2		1			5		1										
Cardinal	1		1	1	3	1	4		1		1		1									
Robin	1									2	1											
B. Jay					2																	
Killdeer	1	1	2									2										
Crows	1		2																			
Hawk	1																					
Dickcissel		1																				
Bobwhite		1	1	1	1	1					1											
Yellowhead			1	1	3		8				1											
Barn Swallow		2					1	3			1											
Mallard		2	1+		2							2										
Blue-W. Teal				1																		
Tree Swallow		1		2	4	2	1		3		2											
Common Yellowthroat			1		1			1	1		1											
Long-Eared Owl							1															
Blk Cr. Night			2					4														
E. Kingbird			1																			
Eng. Flycatcher				1																		
Yel.-Billed Cuckoo				1	1+					1												
F. Sparrow				1	5		1															
W.E. Peewee			1+							1												
Cowbird					2																	
Flicker					1	1																
Pipit					1+	1			1													
Hermit Thrush					2																	
Chimney Swift					2					1												
Gull					1			10														
Sp. C. Flycatcher					1						1											
Red Bellied Woodpecker					1				1													
N. Orioles						1																
Cuckoo						1	1+		1													

Note: The left space in each column is for use in recording birds detected during the transect between points; the right space is for use in recording birds detected during the 10-minute stop. Use appropriate spaces on the reverse side for recording birds flying over or through the study area which do not stop in the study area.

SPECIES	#__	#__	#__	#__	#__	#__	#__	#__	#__	#__	#__	#__

Utilize this portion of the data sheet to record those species observed flying over or through the study area, but not stopping in the study area or those species not a typical part of the habitat type being censused.

SITE Horseshoe Lake Rec. Area TRANSECT SET III ; STOP NUMBERS: 13 to 21.

Page 1 of 1 (for this date)

OBSERVER _____

	TIME	TEMP.	WIND CODE	SKY
Starting:	5:37	62 °F	2	1
Ending:	9:56	73 °F	3	1

DATE: 6-5-83

Print the correct STOP NUMBER in the designated space above each column.

	SPECIES	#13		#14		#15		#16		#17		#18		#19		#20		#21		#___		#___		#___	
X	R.W. Blackbird	14	8	4	9	6	2	7	3	24	5	5	4		4	38		1	2						
X	Grackle	8			4	1			3			2	6	6	1	2	1	6	8	2	2				
	Starling	8		1														2		1	1				
	Bobolink & Tree	3			1	5	1	1		2	1	1	2	3			3		2						
	Cardinal	4		1		3	3	2				1	1				4	3	2						
	M. Dove	1										2		1				2	2						
	H. Wren	1																							
	Cedar Waxwing	2				5						5						5							
	Yel-Billed Cuckoo	1	1									1		1											
	Blk Cr-Nt Nt H	1					T		9																
	Green Heron	2								1									T						
	Mallard	2				2				3		1				3		1							
	[redacted]																								
	B. Thrasher	1										1	2			2			2						
	N. Oriole	1																							
	E. Kingbird	1																							
	B. Swallow	2				2	1										2						14		
	Warbling Vireo	4		1			1	1										1	1		1				
	I. Bunting	4		1	T	1	1						2	1			2								
	Mallard	2				3	2	1					1				1								
	Killdeer	1			1				1							1		2		1					
	Downy Woodpecker	1					1						1												
	Red-eyed Vireo	1																							
	Common Yellowthroat	1						1					1												
	Chickadee	2	3			1	1												1						
X	E. Fl[illegible]		1																						
	B. Tan[illegible]					2										1									
	C[illegible]					1	1					4													
	R. Th[illegible]					1																			
	Chipping Sparrow					2							1						3						
	C[illegible]						1	1																	
	Y[illegible] W[illegible]						1																		
	Carolina Wren						1																		
	M[illegible]							2																	

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SPECIES	#16	#17	#18	#19	#20	#21	#_	#_	#_	#_	#_	#_
Snowy Egret	1	5										
White-eyed Vireo	1											
Common Flycatcher	1											
Crow		1										
Little Blue H		5										
Red Wing Black		2	1									
Flicker			1									
Catbird			1			1						
Red Billed Woodpecker			1									
Dickcissel			1									
Cattle Egret			1									
Robin			1	1	1	3	1					
E. T. Sparrow				4	[illegible]							
H. Lark					1							
Meadowlark					1	1						
H. Sparrow						2	✓					
Bell's Vireo						1						

Utilize this portion of the data sheet to record those species observed flying over or through the study area, but not stopping in the study area or those species not a typical part of the habitat type being censused.

SITE Horseshoe Lake Rec. Area TRANSECT SET II ; STOP NUMBERS: 7 to 12. Page 1 of 1 (for this date)

OBSERVER Leo J. Nico

	TIME	TEMP.	WIND CODE	SKY
Starting:	5:31	68 °F	2	1
Ending:	8:16	72 °F	2	1

DATE: 6-10-83

Print the correct STOP NUMBER in the designated space above each column.

SPECIES	#7		#8		#9		#10		#11		#12		#—		#—		#—		#—		#—		#—	
R.W. Blk			7	3	5	6	13	5	12		10													
Grackle	2		15	3	2		4		28	1	5													
Starling				3		2*	4		6	3	54													
I. Bunting	1		3	1			1		1	T														
Robin	1				1		4		5	4														
Goldfinch			1	2					2	1														
Red-eyed Vireo	1		1		1																			
B. Jay	1								1															
Cardinal	1			1	1		1	1	4		1													
Carolina Wren			1		1																			
Yellow Warbler			1																					
Warbling Vireo			1				1	1	2															
Chickadee	1		1		1		1		1															
Titmouse	1		1																					
Barn Swallow						1				2														
Yellow-billed Cuckoo	1		2		1																			
Black Grat			2																					
Downy			1						1															
Red Cr. Flycatcher			1																					
Sav. Sparrow			1				1			1	1													
Flicker			1				1		1															
Chat			1																					
Mallard			T			3				T		6												
Chimney Swift			2				1																	
Wood Duck				2																				
H. Sparrow					1				2	2														
Blk-Cr. Night-Heron						1					1	6												
Catbird								1																
N. Oriole									1															
Killdeer										1														
Cattle Egret										T														
Dickcissel										2														
Rock Dove										3														

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SPECIES	#11	#12	#	#	#	#	#	#	#	#	#	#
E. Kingbird	1											
Blackbirds	11	2										
Crow		1										
Wood Duck		1										
Kestrel		2										
Little Blue H		1										
E. Meadowlark		1										

Utilize this portion of the data sheet to record those species observed flying over or through the study area, but not stopping in the study area or those species not a typical part of the habitat type being censused.

SITE Horseshoe Lake Rec. Area TRANSECT SET II ; STOP NUMBERS: 7 to 12.

Page 1 of 1 (for this date)

OBSERVER Leo G. Nico

	TIME	TEMP.	WIND CODE	SKY
Starting:	5:31	67 °F	1	1
Ending:	8:20	75 °F	2	1

DATE: 6-18-83

Print the correct STOP NUMBER in the designated space above each column.

SPECIES	#7		#8		#9		#10		#11		#12		#—		#—		#—		#—		#—		#—	
x Red W. Blk			8	2	22	5	13	2	9	5	16	8												
x Bluebird		2	4	1			15		39			2												
Starling				T	1	1	3		9	41														
E. Pewee		1					1																	
Robin		1	3				2		2	5														
Warbling Vireo			1				2	1	2															
Yellow-Billed Cuckoo			2		1																			
M. Dove		1	1																					
Red Bellied Wdpk		1																						
I. Bunting			6	1				1																
Yellow Warbler			1																					
Gr. Yel. Yellow			2		1																			
T. Tit		1																						
Red-eyed Vireo		1	1																					
Blue Grosbeak		1																						
Chickadee			4	1			1	1																
Goldfinch			2				2																	
Cardinal			3	1	1		1	2	1															
N. Oriole			1						1															
Carolina Wren			1																					
Cowbird			1	1			1																	
Downy Wdpk			2					1																
Bobwhite			1							1	2													
Song Sparrow			1																					
Red Squirrel				1		3			1															
B. Jay					1				1			1												
Chimney Swift					1																			
Little Blue Heron						1																		
Black-C. Night-H						5						3												
Mallard						2					2													
Cattle Egret						3	3		1															
Ha. Sparrow									1															
Meadowlark										2														
Dickcissel										1	2													

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X Saw Kestrel on wire between Sites 8-9 at 8:40 AM

SPECIES	#11	#12	#__	#__	#__	#__	#__	#__	#__	#__	#__	#__
E. Kingbird	1	7										
Field Sparrow		1										
Killdeer		1										
Crow		1										
Kill		2										

Utilize this portion of the data sheet to record those species observed flying over or through the study area, but not stopping in the study area or those species not a typical part of the habitat type being censused.

SITE Horseshoe Lake Rec. Area TRANSECT SET III ; STOP NUMBERS: 13 to 21 .

Page 1 of 1 (for this date)

OBSERVER Leo G. Nico

	TIME	TEMP.	WIND CODE	SKY
Starting:	5:32	77 °F	1	2
Ending:	9:32	86 °F	2	1

DATE: 6-26-83

Print the correct STOP NUMBER in the designated space above each column.

	SPECIES	#13		#14		#15		#16		#17		#18		#19		#20		#21		#Rd		#—		#—	
X	RW	5	9		9	30	6	2	4	20	7		4	10		25	5	5	15						
X	Grackle	5		1	1	4	5		1				4	2				12	10						
	Starling	3																2			3				
	Cardinal	3	1			4	3	1				3	2				2	2	1						
	Blackbird	1			1			3		1		1	1				2	2	1						
	Robin					1	1											2	1						
	P. Martin	1																							
	Bobwhite	1				2		1				3	2					2	1						
	Kingfisher	1																							
	Warbling Vireo	4										1						3	1						
	M Dove	2									2		1					1	1						
	Chickadee	1				1		2				2	3	1											
	Y.B. Cuckoo	1												1			1		1						
	Killdeer	1	1							5	1							1							
	Co Yel Tht	1					1	1					2												
	Woodcock		1																						
	Bank Swallow		12																						
	Cattle egret		1							5															
	Barn Swallows		2	1	1		4	4	19									2	1						
	BHCG Night H			1		1	2									3									
	Redcaped Vireo			1																					
	Cedar Waxwing					1																			
	Mallard					6	4				1							11							
	Little Blue					1				6															
	Goldfinch					2		1				2					1	1	1						
	Chim. Swift					1						2	1												
	Cowbird						1																		
	Downy wdpk						2					1					1								
	Carolina Wren						1																		
	Chat						2	1					1												
	Mourning Dove							1																	
	Crow							1		3								1							
	White-eyed Vireo							1																	
	Kestrel									1															

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SPECIES	#17	#18	#19	#20	#21	#__	#__	#__	#__	#__	#__	#__
Swan E	1*											
Meadowlark	1			1								
B Trasher		2										
D H (Green)		7	1	1								
Red Wdpk		1										
Horned Lark			1									
E. T. Sparrow			2									
Willow Flycat					1							
Yellow Warbler					1							

* S. Tracks

Utilize this portion of the data sheet to record those species observed flying over or through the study area, but not stopping in the study area or those species not a typical part of the habitat type being censused.

SITE Horseshoe Lake Rec. Area TRANSECT SET I ; STOP NUMBERS: 1 to 6 .

Page 1 of 1 (for this date)

OBSERVER Leo G. Nico

	TIME	TEMP.	WIND CODE	SKY
Starting:	5:42	76 °F	3	1
Ending:	8:15	78 °F	3	1

DATE: 6-29-83

Print the correct STOP NUMBER in the designated space above each column.

SPECIES H. Sp.	#1		#2		#3		#4		#5		#6		#—		#—		#—		#—		#—	
RW	5	8	5	14	7		11	22	11	1		3										
Bluebird		T	2	2		1	3			2	4	1										
Starling	30	2								2	4											
H. Wren	1																					
Crow	2										1	3										
Robin	1				6		3			2	1											
M. Dove	1				1																	
Killdeer	1	1									3	2										
Cattle Egret	2	T	T									2										
Cardinal	1		1		4	1	4			2	4											
Wooldridge Vireo	1										1											
Mourning Warbler	1											3										
Dickcissel		1																				
Goldfinch	1	2	2		3	1				1												
Indigo Bunting		1	2	1	2	2	1			1	1											
Purple Martin		1																				
Great Egret		1	1		2			1			1											
Red-tailed Hawk	2			1	1																	
Little Blue			T					1														
Red-eyed Vireo			1		1	1	3		1													
Chimney Swift			1		1																	
Blue Grosbeak			1		1		1				1											
Field Sparrow				2	1																	
B. Thrasher				2																		
Red-winged Blackbird			2																			
Titmouse					1	1			1													
Chickadee				1	1		1															
Barn Swallow				3			1	3			1	3										
Flicker					1																	
Downy Woodpecker					1				1		1											
B. Jay					1																	
Cat Bird					1																	
Pileated Woodpecker								1				1										
Wood Pewee									1													

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SPECIES	#5	#6	#__	#__	#__	#__	#__	#__	#__	#__	#__	#__
P	1											
Cowbird	2											
B-C. N.H. Heron		P										
N. O. [illegible]		1										

Utilize this portion of the data sheet to record those species observed flying over or through the study area, but not stopping in the study area or those species not a typical part of the habitat type being censused.

APPENDIX V

I.D.O.C. Breeding Bird Investigations Guidelines

AVIAN ECOLOGICAL INVESTIGATIONS

DIVISION OF FOREST RESOURCES AND NATURAL HERITAGE

ILLINOIS DEPARTMENT OF CONSERVATION

Breeding Bird Investigations on Illinois Department of Conservation Land-Holdings.

PURPOSE: To obtain, through standardized, systematic sampling, an estimate of abundance and distribution of breeding birds on I.D.O.C. land-holdings. The information obtained will be used to provide appropriate management recommendations in the development of Master Management Plans for those areas.

SAMPLING TECHNIQUE: Even though the actual plan for each I.D.O.C. site will have to be individually prepared, the standard technique will be Spot Censusing along accompanying Transect Routes. Each site will be divided into Transect Sets with up to ten (10) Census Stops spaced along a Transect Route. All birds heard and seen will be recorded for ten (10) minutes at each Census Stop; in addition, all birds noted during the walk between each Stop will be recorded. Each Transect Set will be completed four (4) times during the Survey Period. (An additional four (4) days will be used to obtain a qualitative sample of the areas not satisfactorily covered by the Transect Sets.) Habitat identification will be recorded for each Census Stop. Daily field investigations will begin at the starting point of a particular Transect Set by at least sunrise (C.D.T.) and the Transect Route will be completed by at least 10:00 a.m.

SURVEY PERIOD: Field censusing will be conducted from 25 May to 30 June 1983. If an I.D.O.C. site has five (5) Transect Sets, a minimum of twenty (20) field census days will be necessary for this portion of the Investigations. Four (4) additional days will be required for the Qualitative Searches.

STRICT ADHERENCE TO THE FOLLOWING RULES IS ESSENTIAL FOR CONDUCTING THESE INVESTIGATIONS.

Requirements: The field investigator(s) must be familiar with the songs, calls and visual identification of all species likely to be encountered; this is especially important for the discovery and documentation of rare, threatened and endangered species. Since identification by songs and calls is required, acute hearing is extremely important and necessary.

Advance preparations and scouting: The site map provided by the I.D.O.C. depicts the approximate locations of each Census Stop. The actual Transect Routes will be designed by the contractor but must incorporate the projected I.D.O.C. Census Stops. (See next page for necessary changes.) Therefore, advance scouting and determination of the Transect Routes by the contractor will be required before censusing can begin. In addition, each Census Stop must be marked in advance so that the field investigator will be able to return to the exact Census Stop each time. (The contractor will use markers that will remain in place for 10 or more years so that future investigators will also be able to relocate the Census Stops.) For convenience, temporary markers may be used along the Transect Routes.

Materials and Equipment: Field sheets and report forms will be supplied by the I.D.O.C.; however, pencils, binoculars, maps, clip boards, a watch with a second hand (or stopwatch), personal transportation, gasoline, a thermometer, and other necessities (canoe, boat, etc.) will be provided by the contractor/investigator(s).

Revised -- 1983

Weather: Transect Routes and Census Stops must be completed under satisfactory weather conditions: good visibility, little or no precipitation, light winds. An occasional light drizzle or a very brief shower may not affect bird activity, but fog, steady drizzle, or prolonged rain should be avoided. When wind speeds exceed Beaufort 3, the bird censuses should not be taken.

Wind Speed Codes (enter Beaufort Numbers, not m.p.h., on Data Sheets):

Beaufort Number	Wind Speed (miles per hour)	Indicators of Wind Speed
0	Less than 1	Smoke rises vertically
1	1 to 3	Wind direction shown by smoke drift
2	4 to 7	Wind felt on face; leaves rustle
3	8 to 12	Leaves, small twigs in constant motion; light flag extended
4	13 to 18	Raises dust and loose paper; small branches are moved
5	19 to 24	Small trees in leaf sway; crested wavelets on inland waters

Sky Condition Codes (enter these Weather Bureau Code Numbers on Data Sheets):

0	Clear or a few clouds
1	Partly cloudy (scattered) or variable sky
2	Cloudy (broken) or overcast
4	Fog or smoke
5	Drizzle
8	Showers

Starting: The field investigator should be at the first Census Stop or walking on the first leg of the Transect Route by at least sunrise (C.D.T.); however, initiation of the Route may begin as early as 15 minutes before sunrise (sunrise occurs as early as 5:15 a.m. in some areas). Be at the starting location early enough to record the weather data.

Census Stops: These Stops will have been clearly marked and numbered (as noted in "Advance preparation and scouting") prior to the actual running of each route. For census purposes, though, the field investigator should attempt to locate and mark Census Stops (whenever possible) so that they do not occur near a dramatic habitat change (edge); individual Census Stops (and markers) may be adjusted up to 300 feet from the I.D.O.C. projected census point (these points have been designated on the accompanying site map) in order to comply with the contiguous habitat ideal. A map showing and written descriptions of all Census Stops will be included in the final report--so the stops can be readily relocated in the future.

Counting: Spend exactly 10 minutes counting (no more, no less) the birds at each Census Stop. Do not use a tape recorder during the actual surveys. If a second person accompanies the field investigator, talking and other distractions should be minimized--and avoided entirely during the 10-minute census periods.

It is important that each Transect Set be completed no later than 10:00 a.m. since bird activitiy changes dramatically by that time. The field investigator should not prolong the walk between Census Stops.

Which Birds to Count: Count all individual birds (of all species) seen and/or heard during the transects and the 10-minute census periods, regardless of distance. Make a special note (including numbers) when dependent young or downy chicks of water or shorebirds and when migrants are recorded. The data sheets have separate spaces for recording birds noted during the transect portions of the route (left space), during the 10-minute census period (right space), and for those species note flying over or through the area without stopping (space at bottom of reverse side); these latter

Which birds to count (continued):
species are not a typical part of the community (habitat) type being censused during the 10-minute stops. Avoid estimating numbers except for large flocks of birds flying swiftly through/over the area. Birds identified prior to or after, but not during, the 10-minute censuses will be recorded as part of the transect data before or after the appropriate 10-minute census. Do not record any birds more than one time--even though some individuals will be identifiable before, during and/or after the 10-minute census period. Written details of unusual species' occurrences, or noteworthy observations should be prepared.

Record Keeping: Use of the I.D.O.C. field sheets is highly recommended. Please submit your original field notes (even if soiled) along with reports when finished; keep copies yourself. A word of caution concerning dictating observations into a tape recorder: it is risky because the data can be easily lost by one manner of malfunction or another. Transferring the data is tedious and also subject to error.

Remember to record weather data at the start and finish of the daily field investigations.

Transect Route Problems: Advance preparation of routes should eliminate most last minute adjustments. It may be that the location and accessibility of the Census Stops as prepared by the Springfield staff are impractical owing to existing physical conditions which were not known or discernible to us. It is possible that some major adjustments will become necessary; if such problems do occur, notify the Springfield office (217/785-8774) immediately and be prepared to make recommendations on how to solve the problem effectively.

Qualitative Searches: In order to assure coverage of all habitat types within the designated I.D.O.C. site, four (4) additional census days will be used for the selective sampling of habitat types that were either: a) missed, or b) poorly covered by the Transect Sets. Such areas may include but are not limited to picnic areas, certain fields, residential or work complexes, orchards, other natural areas, etc. and shall be designed by the field investigator and shall consist of 10-minute Census Stops at the various habitat sites selected. The investigator may drive, rather than walk, to the various sites, but each selected census site must be censused on four different days. There will be no Transect Legs in conjunction with these Census Stops.

VEGETATIVE SYNOPSIS: All 10-minute Census Stops (of each Transect Route and all Qualitative Searches) must be vegetatively described. The I.D.O.C. Stratum Ranking Forms make recording of the necessary data easy. The following Community Types and Stratum Ranking System (also printed on the I.D.O.C. forms) will be used.

COMMUNITY TYPES

Forests	Wetland	Prairies	Savanna
Upland Forest	Marsh	Prairie	Savanna
Sand Forest	Swamp	Sand Prairie	Sand Savanna
Floodplain Forest	Bog	Gravel Prairie	Barren
Flatwoods	Fen	Hill Prairie	
	Sedge Meadow	Scrub Prairie	

Surface Water	Cropland	Successional Field	Forageland
Lake Michigan			
Reservoir			
Impoundment			
Stream			

Developed Land

Stratum Ranking (continued on reverse)

STRATUM RANKING (SR)

9 Dominant in essentially pure stand, no other species exceed SR 2
8 Dominant, next lower species cannot exceed SR 6
7 Codominants, two or possibly three species sharing dominance
6 Codominants, several species sharing dominance
5 Intermediate, common species with moderate cover
4 Intermediate, common species with low to moderate cover
3 Intermediate, several plants with minimal cover
2 Subordinate, two to several plants of inconsequential cover
1 Subordinate, only one individual noted

FINAL REPORT AND TABULATIONS:

A Preliminary Report, outlining basic results, to be completed and submitted by 31 July 1983.

The Final Report to be completed and submitted by 31 August 1983.

The Final Report will consist of two separate manuscripts.

The First Manuscript will include:

-- a physical tabulation of the results obtained (on I.D.O.C. Tabulation Sheet);
-- a vegetative synopsis of the Census Stops;
-- a map and a written description that anyone can use to relocate the Census Stops;
-- a concise account of each species occurrence, abundance, distribution, and habitat association throughout the site;
-- a distribution map depicting the actual Census Stops and the Transect Legs where each species was recorded; and
-- accounts of the various habitats throughout the site and the bird species utilization and dependencies on those habitats.

The Second Manuscript will include:

-- all recommendations for the conservation of particular species on the site;
-- all recommendations for the conservation of species groups on the site;
-- all recommendations for the conservation of habitats within the site (and possibly adjacent areas); and
-- a discussion of the pros and cons of these investigations and problems that should be addressed and/or corrected before pursuing similar investigations.