



**Friends of
Swan Lake Park**



**Designating Swan Lake Park as a
Significant Component of Markham's
Natural Heritage Network Lands**

June 2022
(Revised)

Designating Swan Lake Park as part of Markham's Natural Heritage Network

Swan Lake is a regulatory orphan. It is not considered part of the Rouge River watershed nor a stormwater pond, so it has been managed as a unique feature without any formal environmental standard.¹

Markham's Greenway System and Natural Heritage Network

In the 2014 Official Plan, Markham has designated many ecologically sensitive areas as part of its Greenway System. Areas within the Greenway System are areas "that will preserve significant ecological value" and that "provide opportunities to improve biodiversity and connectivity of natural features and ecological function". Areas within the Greenway system are protected from future development. Appendix A provides a map of Markham's Greenway System at the time of the 2014 Official Plan.

The Greenway system is comprised of six categories of environmentally protected areas: 1) Greenbelt Plan lands; 2) Oak Ridges Moraine Conservation Plan area lands; 3) Rouge Watershed Protection area; 4) Natural Heritage Network Lands; 5) Natural Heritage Network Enhancement Lands; and 6) Other Greenway Lands including certain naturalized stormwater management facilities.

Swan Lake Park is already recognized as an ecologically important area. Though Swan Lake is not a stormwater pond, Swan Lake Park is designated as a "Community Park" within the "Other Greenway Lands including certain naturalized stormwater management facilities", a category used primarily for areas containing large stormwater ponds and areas which do not receive the same environmental review and focus as do Natural Heritage Network Lands.

In preparation for the next official plan, Markham has initiated a review of its Natural Heritage Network Lands. We believe Swan Lake Park should be recategorized and treated as a significant component of Markham's Natural Heritage Network Lands comparable to Milne Park and Toogood Pond and be included in the current environmental review.

Elements of a Natural Heritage Network

Ontario has provided guidelines on the components of a Natural Heritage Network. The primary requirement is for an area to be ecologically sensitive. It is not necessary for a component of a Natural Heritage Network to contain a river, stream, or major water body. For example, Regional Forests and other significant woodland areas are included. In May 2021, Markham Council suggested staff consider including hydro fields as natural heritage resources.

Many of the areas within Markham's designated Natural Heritage Network are integral components of the Oak Ridges Moraine or the Rouge River Watershed. Swan Lake is not directly connected to the Rouge River watershed, but it does contain a major water body. Swan Lake Park satisfies many of the criteria in the Ontario guidelines that are to be considered in designating an area a component of a Natural Heritage Network, making Swan Lake Park an excellent candidate for inclusion in Markham's Natural Heritage Network.

¹ Cover artwork by Paul Cassidy

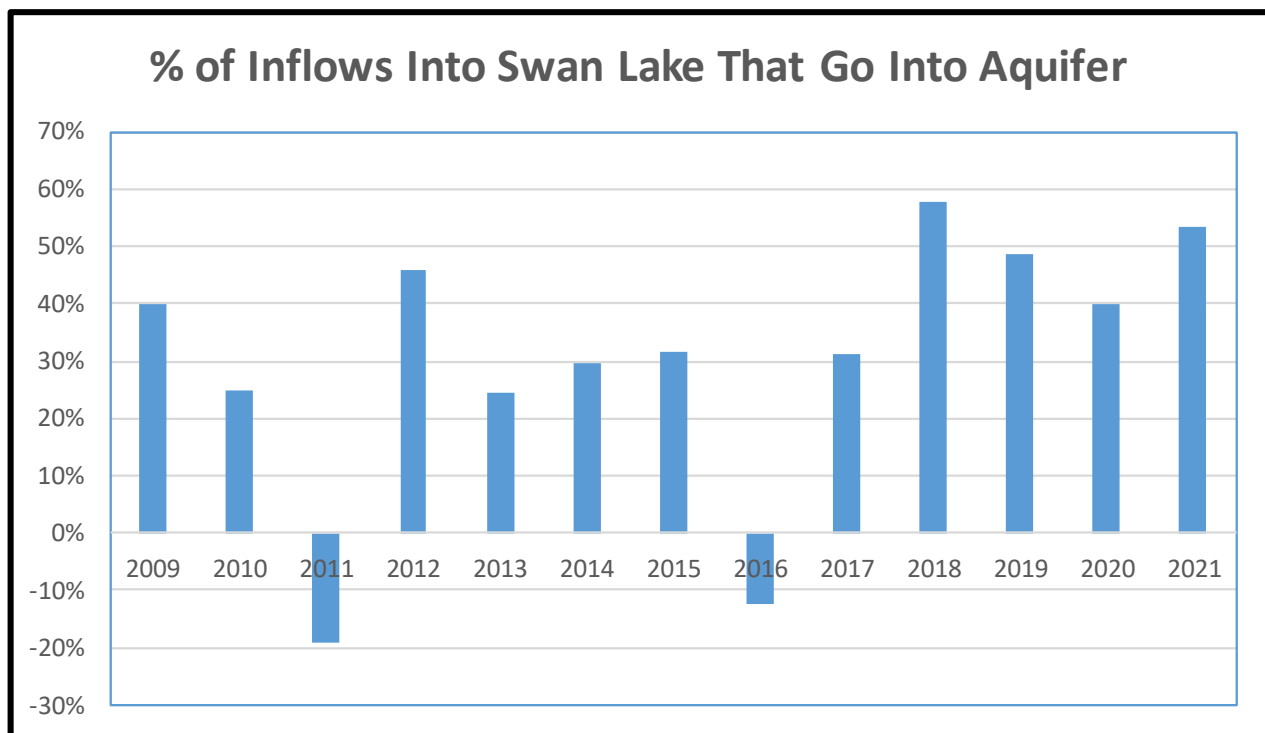
1) Swan Lake – A Significant Local Groundwater Recharge Area

Swan Lake Park which is approximately 11 hectares in size. At 5.4 hectares, Swan Lake is the second largest of three major water bodies in Markham.

	Size of Park (hectares)	Size of Water Body	Bird Species	Established
Milne Dam Conservation Park	123 ha	21 ha	161	1825
Swan Lake Park (Revised Nov 2023)	11 ha	5.4 ha	155	1850
Toogood Pond Park	33 ha	3.0 ha	122	1840

Within Natural Heritage systems, major water bodies are considered significant natural sources for recharging the aquifer. A recent flow analysis by Markham staff confirms Swan Lake’s role as a source for naturally recharging the aquifer. Over the 13-year period 2009 – 2021, it is estimated that 35% of all water flowing into Swan Lake enters the aquifer. In some years, the contribution to the aquifer has exceeded 50%.

Groundwater flow in and out of the lake is estimated to range between 10 and 300 m³/day.



The Official Plan defines a “significant local groundwater recharge area” as an area that sustains aquifer water levels, groundwater flow patterns, aquatic habitat, and key hydrologic features.

Swan Lake should be designated as a “significant local groundwater recharge area” within Markham’s Natural Heritage Network.

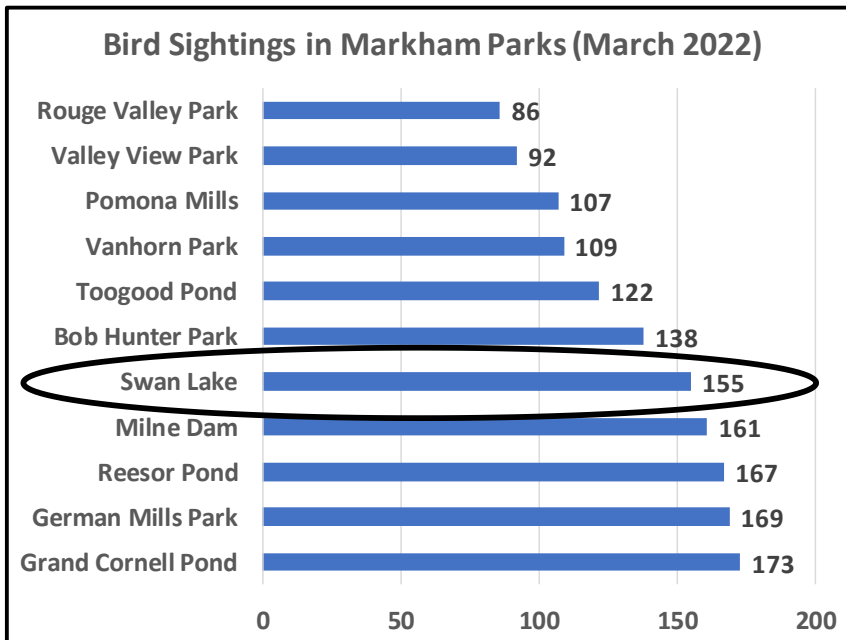
2) Swan Lake Park – An Ecologically Significant Area

Over 65% of the parkland within Swan Lake Park constitutes woodland and naturalized areas contributing to the canopy of the Greensborough area and supporting a wide range of bird and terrestrial wildlife. Pollinator plants were recently added to a small meadow area within the park.



Swan Lake Park is well known by local birding enthusiasts for its diverse range of species.

In addition, local photographers have documented over 12 different mammals, 4 different species of turtles and 34 different species of insects as listed in Appendix B.



Ebird.org is a site supported by Cornell University to support research into bird species. Of 11 Markham Parks listed on the ebird.org website, Swan Lake Park is reported to host 155 different species – the fifth largest of the Markham parks.

There are only a few more sightings in the much larger Milne Park (161) and 122 sightings at Toogood Pond.

One important aspect in selecting areas as part of the Natural Heritage Network is their role in supporting wildlife migratory routes. Swan Lake's role in the migratory pathway for Canada Geese and Mallards is well documented but it also provides an important resting area for many other migratory birds – over 40 of the 153 species listed in Appendix B have been identified as migratory species.

The well documented biodiversity within Swan Lake Park needs protection and nurturing.

3) Swan Lake - An Important Component of Markham's Heritage

All of Markham's three major water bodies, Milne Reservoir, Toogood Pond, and Swan Lake are man-made structures – none are natural entities. A former gravel quarry, Swan Lake has a comparable legacy to the other two major water bodies recognized by Markham.

Markham Village was founded around 1825. Milne Reservoir's history can be traced to the first mill starting around that period near the site of the present dam. Toogood Pond's start has been traced back to a grist mill started in 1840's while the quarry in what is now Swan Lake can be traced back to the 1850's when gravel was extracted to support the building of area railroads.

Swan Lake, in its various forms, has been an instrumental component of the heritage of Markham Village.

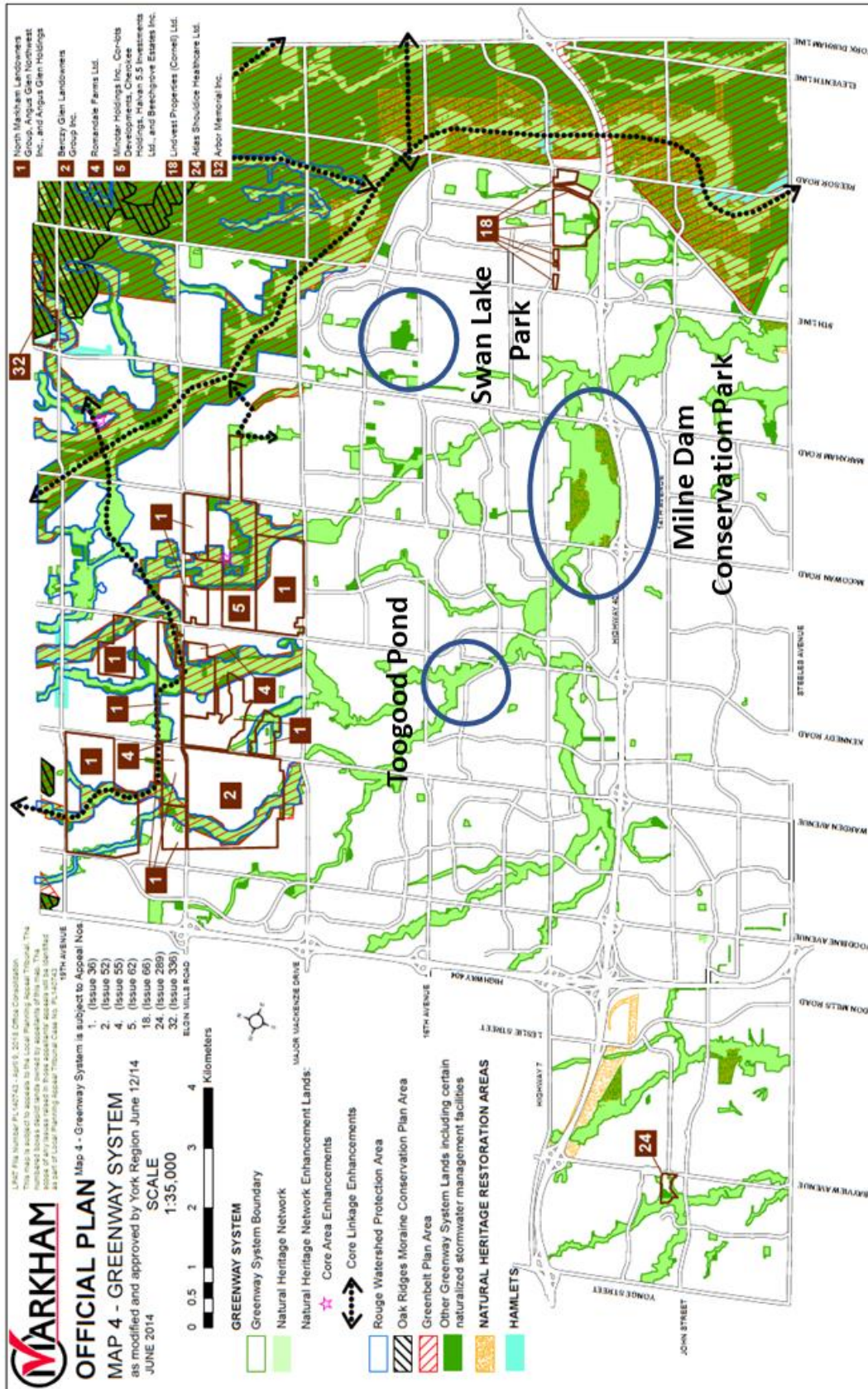
Conclusion

Markham has already determined that Swan Lake is a major local groundwater recharge area while Swan Lake Park is well documented as one of the leading wildlife habitats in Markham.

Swan Lake Park is a significant ecological area within Markham, and it should be provided the same environmental stewardship as Milne Park and Toogood Pond by being designated as a critical component in Markham's Natural Heritage Network.

Under sections 3.1.2.11 and 3.1.2.12 of Markham's 2014 Official Plan, Markham Council has the authority to refine the boundaries of the Natural Heritage Network Lands pending an environmental review. We recommend that Markham undertake an assessment on the feasibility of designating Swan Lake Park as part of Markham's Natural Heritage Network and, if approved, that Swan Lake Park be included in Phase 2 of the Natural Heritage Management Study.

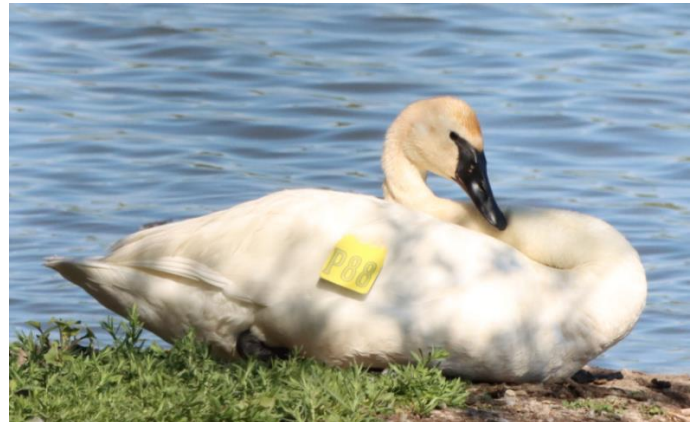
Appendix A: Markham's Greenway System



Appendix B: Wildlife in Swan Lake Park

Swan Lake Park is home to a rich diversity of wildlife.

The Friends of Swan Lake Park is asking Markham to undertake an environmental assessment of the aquatic and terrestrial habitats in Swan Lake and Swan Lake Park with a view to determining whether Swan Lake Parks should be designated as a significant component of Markham's Natural Heritage Network.



Photos courtesy of Don and Cindy Fowler and Maureen Peters



Swan Lake Park Bird Sightings Recorded on ebird.org March 14, 2021

1 Alder Flycatcher	41 Chestnut-sided Warbler
2 American Black Duck	42 Chimney Swift
3 American Coot	43 Chipping Sparrow
4 American Crow	44 Clay-colored Sparrow
5 American Golden-Plover	45 Cliff Swallow
6 American Goldfinch	46 Common Grackle
7 American Pipit	47 Common Loon
8 American Redstart	48 Common Merganser
9 American Robin	49 Common Raven
10 American Tree Sparrow	50 Common Tern
11 Baltimore Oriole	51 Common Yellowthroat
12 Bank Swallow	52 Cooper's Hawk
13 Barn Swallow	53 Dark-eyed Junco
14 Bay-breasted Warbler	54 Domestic goose sp. (Domestic type)
15 Bay-breasted/Blackpoll Warbler	55 Double-crested Cormorant
16 Belted Kingfisher	56 Downy Woodpecker
17 Black-and-white Warbler	57 Downy/Hairy Woodpecker
18 blackbird sp.	58 Eastern Kingbird
19 Blackburnian Warbler	59 Eastern Phoebe
20 Black-capped Chickadee	60 Eastern Whip-poor-will
21 Black-crowned Night-Heron	61 Eastern Wood-Pewee
22 Blackpoll Warbler	62 Empidonax sp.
23 Black-throated Blue Warbler	63 European Starling
24 Black-throated Green Warbler	64 Field Sparrow
25 Blue Jay	65 flycatcher sp. (Tyrannidae sp.)
26 Blue-gray Gnatcatcher	66 Fox Sparrow
27 Blue-headed Vireo	67 Gadwall
28 Blue-winged Teal	68 Golden-crowned Kinglet
29 Blue-winged Warbler	69 Golden-winged Warbler
30 Brown Creeper	70 goose sp.
31 Brown Thrasher	71 Gray Catbird
32 Brown-headed Cowbird	72 Gray-cheeked Thrush
33 Bufflehead	73 Great Blue Heron
34 Cackling Goose	74 Great Crested Flycatcher
35 Canada Goose	75 Greater Scaup
36 Canada Warbler	76 Greater White-fronted Goose
37 Cape May Warbler	77 Greater Yellowlegs
38 Caspian Tern	78 Greater/Lesser Yellowlegs
39 Catharus sp.	79 Green Heron
40 Cedar Waxwing	80 gull sp.

Swan Lake Park Bird Sightings Recorded on ebird.org March 14, 2021

81	Hairy Woodpecker	120	Rock Pigeon
82	Hermit Thrush	121	Rose-breasted Grosbeak
83	Herring Gull	122	Ruby-crowned Kinglet
84	Hooded Merganser	123	Ruby-throated Hummingbird
85	Horned Grebe	124	Ruddy Duck
86	Horned Lark	125	Scarlet Tanager
87	House Finch	126	Sharp-shinned/Cooper's Hawk
88	House Sparrow	127	Snow Goose
89	House Wren	128	Solitary Sandpiper
90	Indigo Bunting	129	Song Sparrow
91	Killdeer	130	Spotted Sandpiper
92	Least Flycatcher	131	Swainson's Thrush
93	Magnolia Warbler	132	swallow sp.
94	Mallard	133	Swamp Sparrow
95	Mallard/American Black Duck	134	Tennessee Warbler
96	Merlin	135	tern sp.
97	Mourning Dove	136	Tree Swallow
98	Mourning Warbler	137	Trumpeter Swan
99	Nashville Warbler	138	Turkey Vulture
100	Northern Cardinal	139	Veery
101	Northern Flicker	140	Virginia Rail
102	Northern Parula	141	warbler sp. (Parulidae sp.)
103	Northern Rough-winged Swallow	142	Warbling Vireo
104	Northern Waterthrush	143	White-breasted Nuthatch
105	Orange-crowned Warbler	144	White-crowned Sparrow
106	Osprey	145	White-throated Sparrow
107	Palm Warbler	146	Willow Flycatcher
108	peep sp.	147	Wilson's Snipe
109	Philadelphia Vireo	148	Wilson's Warbler
110	Pied-billed Grebe	149	Wood Duck
111	Pine Warbler	150	Yellow Warbler
112	Prairie Warbler	151	Yellow-bellied Flycatcher
113	Red-bellied Woodpecker	152	Yellow-bellied Sapsucker
114	Red-breasted Merganser	153	Yellow-rumped Warbler
115	Red-breasted Nuthatch		
116	Red-eyed Vireo		
117	Redhead		
118	Red-tailed Hawk		
119	Ring-billed Gull		
120	Ring-necked Duck		

Terrestrial Wildlife and Insects in Swan Lake Park

The following summary of terrestrial wildlife and insects in Swan Lake Park was compiled by Don Fowler based on photographs and sightings of Don and Cindy Fowler, members of The Friends of Swan Lake Park.

	Common Name	Scientific Name	Photographed
Mammals			
1	Beaver		
2	Black Squirrel		2019
3	Coyote		
4	Eastern Chipmunk	Tamias striatus	2007-2019
5	Eastern Cottontail Rabbit		2007-2019
6	Grey Squirrel		2019
7	Mink		
8	Muskrat		
9	Raccoon	Procyon lotor	2007-2019
10	Red Fox		2014-2019
11	Red Squirrel		2019
12	Skunk (very young)		2019
Turtles			
1	Eastern Midland Painted Turtle		2007-2019
2	Large unidentified turtle		2019
3	Red-eared Slider		2012-2019
4	Snapping Turtle		2007-2019

	Common Name	Scientific Name	Photographed
INSECTS			
1	Bald Faced Hornet		2017-2019
2	Black Blowfly		2018
3	Black Saddlebags Dragonfly		2019
4	Black-tipped Darner Dragonfly	Aeshna Tuberculifera	2017
5	Bumble Bee		2007-2019
6	Cabbage White Butterfly		2018
7	Canada Darner Dragonfly		2019
8	Carolina Grasshopper	Dissosteira Carolina	2019
9	Carpenter Bee		2014-2019
10	Common Whitetail Dragonfly		2017-2019
11	Eastern Amber Dragonfly		2019
12	Eastern Black Swallowtail Butterfly		2019
13	Familiar Bluet Damselfly		2018-2019
14	German Yellow Jacket Wasp	Vespula Germanica	2017
15	Great Black Wasp		2019
16	Green Blowfly		2018-2019
17	Honey Bee		2016-2019
18	Japanese Beetle		2017-2019
19	Large White Butterfly		2019
20	Monarch Butterfly		2007-2019
21	Mustard White Butterfly		2016-2018
22	Narrow-headed Marsh Fly	Helophilus fasciatus	2017
23	Orange Sulfur Butterfly		2018
24	Painted Lady Butterfly		2017-2019
25	Pecks Skipper Butterfly		2017-2019
26	Question Mark Butterfly		2018-2019
27	Red Admiral Butterfly		2017-2019
28	Red-legged Grasshopper		2019
29	Slender Spreadwing Damselfly		2019
30	Viceroy Butterfly		2017-2019
31	Western Conifer Seed bug	Leptoglossus Occidentalis	2019
32	Widow Skimmer Dragonfly		2019
33	Yellow-legged Mud-dauber	Sceliphron Caementarium	2019
34	Western Tiger Swallowtail Butterfly		2018 - SL Village