

THE METCHOSIN BIODIVERSITY PROJECT

Seven Years, Still Counting

June, 2017

Kem Luther and Andy MacKinnon



Metchosin Biodiversity Project

- ▣ Increase our understanding of Metchosin's species and ecosystems (Blitzes)
- ▣ Share natural history information with interested people in Metchosin and adjacent jurisdictions (Talks & Walks)
- ▣ Use this information and awareness to protect and restore Metchosin's species and ecosystems

How did it begin?

- ▣ With lots of dithering.



- ▣ In 2011, three of us (Andy MacKinnon, Moralea Milne, Kem Luther) formed the Metchosin Biodiversity Project and started planning in earnest. Later joined by Joel Ussery.

The Pattern

- ▣ We began by researching other bioblitzes
- ▣ In the months before the first Metchosin BioBlitz, we set up some ground rules
 - Friday night talk (Talk and Walk)
 - Saturday counting
 - Metchosin boundaries, only naturalized organisms
 - Small budget, volunteer effort
 - Experts, but also non-experts
 - Web reporting, set up a database
 - Have fun!

Logo

- ▣ Gala Milne designed a logo



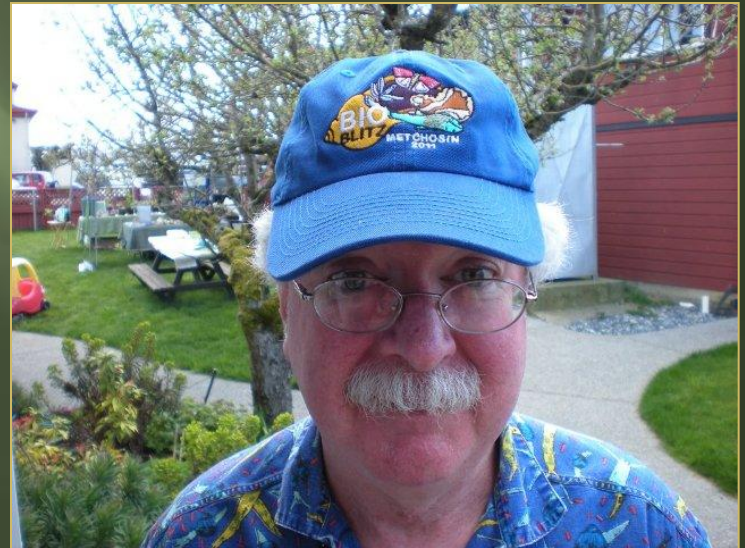
Poster

And made a
poster out of it.



BioBlitz 1 / 2011

- ▣ April 30, 2011. Sunny
- ▣ Headquarters: Metchosin Community House
- ▣ CRD partnership
- ▣ 60 volunteers responded to the call
- ▣ Swag: The hat.



2011: People

- ▣ Hans took a BioBlitz crew to Sugarloaf Mountain



2011: People

- Other groups went to Devonian, Matheson Lake, Pearson, Race Rocks, Witty's



2011: Sightings



Jeremy Gatten/Jamie Fenneman, looking at plants, spotted a nest-making pair of bluebirds

- ▣ A fungal crew found a blue-grey tailedropper at Matheson Lake



2011: Sightings

- ▣ A birder, Ian Cruickshank, found a Yellow Montane Violet at Devonian
- ▣ Serendipity rules!



2011: Results

- ▣ All species were first sightings, of course. We found 850.
- ▣ About 40% were vascular plants
- ▣ Fungi, lichens, birds were 30% of the total
- ▣ 50+ spiders! (including *Nesticus sylvestrii*)



Vascular plant			325
	Vascular plant	Tree	18
	Vascular plant	Shrub	35
	Vascular plant	Forb	227
	Vascular plant	Grass	23
	Vascular plant	Rush	5
	Vascular plant	Sedge	6
	Vascular plant	Fern	11
Bryophyte			74
	Bryophyte	Moss	60
	Bryophyte	Liverwort	14
Lichen			60
Fungus			71
Alga			28
Vertebrate			126
(Marine species)	Vertebrate	Amphibian	4
	Vertebrate	Reptile	5
	Vertebrate	Bird	110
	Vertebrate	Fish	2
	Vertebrate	Mammal	5
Invertebrate			166
(Marine species)	Invertebrate	Insect	27
	Invertebrate	Spider	52
	Invertebrate	Annelid	2
	Invertebrate	Slug	6
	Invertebrate	Snail	14
	Invertebrate	Mollusc	27
	Invertebrate	Nemertean	1
	Invertebrate	Cnidaria	4
	Invertebrate	Arthropod	13
	Invertebrate	Echinoderm	6
	Invertebrate	Porifera	4
	Invertebrate	Polychaete	6
	Invertebrate	Bryozoan	2
	Invertebrate	Flatworm	1
	Invertebrate	Urochordate	1
Total:			850
Red	-listed		5
Blue	-listed		14

BioBlitz 2 / 2012



- ▣ May 5, 2012 — another sunny day
- ▣ Headquarters: Mel Cooper Cabin, B&G Club
- ▣ CRD ran parallel programs at Witty's
- ▣ 55 volunteers attended
- ▣ Swag: Wooden models by Derek Wulff
- ▣ Ann Nightingale talked about owls on Friday night



2012 Venues

- ▣ Groups went to Camp Thunderbird, Blinkhorn, Witty's, Tower Point, B&G Club, Weir's Beach.



2012 Results

- ▣ 940+ species sighted
- ▣ Brought 2-year total to over 1200

29/05/2012			BRODIE 2011	BRODIE 2012	BOTH BRODIES
Vascular plant			324	407	433
	Vascular plant	Tree	20	26	27
	Vascular plant	Shrub	34	43	39
	Vascular plant	Forb	221	279	297
	Vascular plant	Grass	25	34	42
	Vascular plant	Rush	6	3	7
	Vascular plant	Sedge	6	7	8
	Vascular plant	Fern	12	15	13
Bryophyte			73	66	83
	Bryophyte	Moss	61	62	70
	Bryophyte	Liverwort	12	4	13
Lichen			60	78	106
Fungus			72	88	131
Alga			28	22	35
Vertebrate			127	122	152
	Vertebrate	Amphibian	4	2	5
	Vertebrate	Reptile	5	3	6
	Vertebrate	Bird	111	100	124
(Marine species)	Vertebrate	Fish	2	5	7
	Vertebrate	Mammal	5	11	10
Invertebrate			167	161	278
	Invertebrate	Arthropod-land	0	4	4
	Invertebrate	Hymenoptera	2	23	25
	Invertebrate	Lepidoptera	17	31	39
	Invertebrate	Other Insects	8	20	28
	Invertebrate	Spider	53	1	53
	Invertebrate	Annelid-land	2	0	2
	Invertebrate	Slug	6	6	7
	Invertebrate	Snail-land	14	2	14
(Marine species)	Invertebrate	Annelid	0	2	2
(Marine species)	Invertebrate	Mollusc	27	32	44
(Marine species)	Invertebrate	Nemertean	1	0	1
(Marine species)	Invertebrate	Cnidaria	4	5	7
(Marine species)	Invertebrate	Arthropod	13	22	24
(Marine species)	Invertebrate	Echinoderm	6	6	11
(Marine species)	Invertebrate	Porifera	4	2	4
(Marine species)	Invertebrate	Polychaete	6	3	7
(Marine species)	Invertebrate	Bryozoan	2	0	2
(Marine species)	Invertebrate	Flatworm	1	0	1
(Marine species)	Invertebrate	Urochordate	1	0	1
Total:			851	944	1218
	Red-listed		7	12	15
	Blue-listed		13	11	20

2012 Sightings

- ▣ Red-legged Frog, Common Bladder Moss, Purple Sanicle



2012 Sightings

- ▣ SFU bee expert Elizabeth Elle and her student Sherri Elwell rounded up about 20 native bees



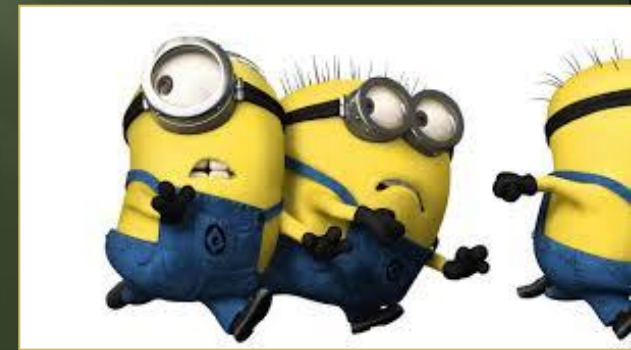
BioBlitz 3 / 2013

- ▣ April 27, 2013 — our first rainy BioBlitz
- ▣ Headquarters: Mel Cooper Cabin, B&G Club
- ▣ Friday talks by Libby Avis, James Miskelly
- ▣ 55 volunteers attended
- ▣ Swag: T-shirts



2013 Highlights

- ▣ Strong teams of bryophyte and alga experts — almost 100 species of alga would be identified (times 4 the num in previous years) and 125 bryophytes (times 2)
- ▣ The lichen count more than doubled, thanks largely the increasing expertise of Ryan Batten and Daryl Thompson.
- ▣ Vascular plants > 400. A team traveling with Hans Roemer zipped around Metchosin, recording a species every 40 seconds.



2013 Results

- ▣ 1200+ species in one day — our highest total
- ▣ Total now more than 1600 species from all three years.
- ▣ Could we reach 2000?

			BioBlitz 2013	All BioBlitzes
Vascular plant			419	513
	Vascular plant	Tree	27	28
	Vascular plant	Shrub	47	50
	Vascular plant	Forb	273	348
	Vascular plant	Grass	43	51
	Vascular plant	Rush	7	10
	Vascular plant	Sedge	10	12
	Vascular plant	Fern	12	14
Bryophyte			126	138
	Bryophyte	Moss	105	111
	Bryophyte	Liverwort	20	26
	Bryophyte	Hornwort	1	1
Lichen			186	205
Fungus			83	166
Alga			101	101
Vertebrate			133	169
	Vertebrate	Amphibian	5	6
	Vertebrate	Reptile	3	6
	Vertebrate	Bird	102	131
(Marine species)	Vertebrate	Fish	13	13
	Vertebrate	Mammal	10	13
Invertebrate			180	346
	Invertebrate	Hymenoptera	8	29
	Invertebrate	Lepidoptera	22	49
	Invertebrate	Other Insects	22	50
	Invertebrate	Spider	45	73
	Invertebrate	Annelid-land	0	2
	Invertebrate	Slug	3	7
	Invertebrate	Snail-land	3	14
(Marine species)	Invertebrate	Annelid	3	3
(Marine species)	Invertebrate	Mollusc	26	48
(Marine species)	Invertebrate	Nemertean	0	1
(Marine species)	Invertebrate	Cnidaria	4	9
(Marine species)	Invertebrate	Arthropod	23	30
(Marine species)	Invertebrate	Echinoderm	11	12
(Marine species)	Invertebrate	Porifera	4	5
(Marine species)	Invertebrate	Polychaete	5	8
(Marine species)	Invertebrate	Bryozoan	0	2
(Marine species)	Invertebrate	Flatworm	1	1
(Marine species)	Invertebrate	Urochordate	0	1
Total:			1229	1639
	Red-listed		9	15
	Blue-listed		12	22

Some 2013 Sightings

- ▣ Townsend's Solitaire, Lungless Salamander (Ensatina), Crumia latifolia (moss)



2013 MycoBlitz

- ▣ Nov 8-9
- ▣ Britt Bunyard gave the talk
- ▣ Mushroom on display at Pearson



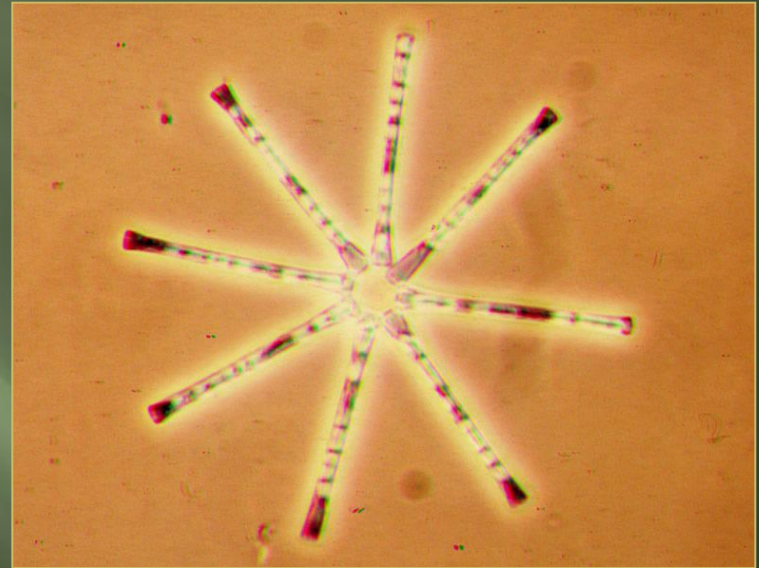
BioBlitz 4 / 2014

- ▣ May 24, 2014 — much later in the spring
- ▣ Headquarters: Mel Cooper Cabin, B&G Club
- ▣ Friday talks by Ted Leischner (native bees) and Kathryn Martell (bluebirds)
- ▣ 70 volunteers attended
- ▣ Swag: BioBlitz tote bag



2014 Sightings

- ▣ Rick Norden gave us almost 20 fresh water plankton



Comandra, Bastard
Toadflax

2014 Sightings

- ▣ *Pachyella babingtonii*,
a small ascomycete,
found at Van der
Meer reserve
- ▣ Howell's *Triteleia*
at Tower Point



2014 Results

- 850 species for the day
- Almost 2000 species in total

			BioBlitz 2014	All
Vascular plant			339	555
	Vascular plant	Tree	30	32
	Vascular plant	Shrub	39	54
	Vascular plant	Forb	204	373
	Vascular plant	Grass	41	56
	Vascular plant	Rush	3	9
	Vascular plant	Sedge	10	16
	Vascular plant	Fern	12	15
Bryophyte			37	142
	Bryophyte	Moss	31	112
	Bryophyte	Liverwort	6	29
	Bryophyte	Hornwort	0	1
Phytoplankton			18	18
Lichen			147	255
Fungus			54	235
Alga			5	101
Vertebrate			101	181
(Marine species)	Vertebrate	Amphibian	5	7
	Vertebrate	Reptile	0	6
	Vertebrate	Bird	91	139
	Vertebrate	Fish	4	16
	Vertebrate	Mammal	1	13
Invertebrate			146	432
(Marine species)	Invertebrate	Hymenoptera	2	30
	Invertebrate	Lepidoptera	34	75
	Invertebrate	Other Insects	37	74
	Invertebrate	Spider	1	74
	Invertebrate	Annelid-land	0	2
	Invertebrate	Slug	6	10
	Invertebrate	Snail-land	15	19
	Invertebrate	Mollusc	10	53
	Invertebrate	Nemertean	2	2
	Invertebrate	Cnidaria	3	11
	Invertebrate	Arthropod	14	38
	Invertebrate	Echinoderm	7	14
	Invertebrate	Porifera	3	6
	Invertebrate	Polychaete	3	11
	Invertebrate	Rotifer	2	2
(Marine species)	Invertebrate	Bryozoan	2	4
	Invertebrate	Flatworm	1	2
	Invertebrate	Urochordate	3	4
Total species:			847	1920
New species added:			227	
Number of observations:			1126	7247
Red	-listed		4	19
Blue	-listed		8	26

2014 MycoBlitz

- ▣ Britt Bunyard the speaker (but a new talk)
- ▣ Display laid out at the Council Room
- ▣ Nov 8, 2014



2014 MycoBlitz Results

- ▣ The 115 new species of mushrooms brought the BioBlitz/MycoBlitz total for four years to ...
2050 !
- ▣ About 2% are red/blue-listed
- ▣ Our database now contains 7300 species sightings



BioBlitz 5 / 2015

- ▣ June 12 2015. Sunny
- ▣ Headquarters: Metchosin Boys & Girls Club
- ▣ Swag: native plants from Saanich Native Plants
- ▣ Friday night: Kem Luther & Andy MacKinnon



2015: People

▣ The crew at B&G Club



Surveying Witty's Spit

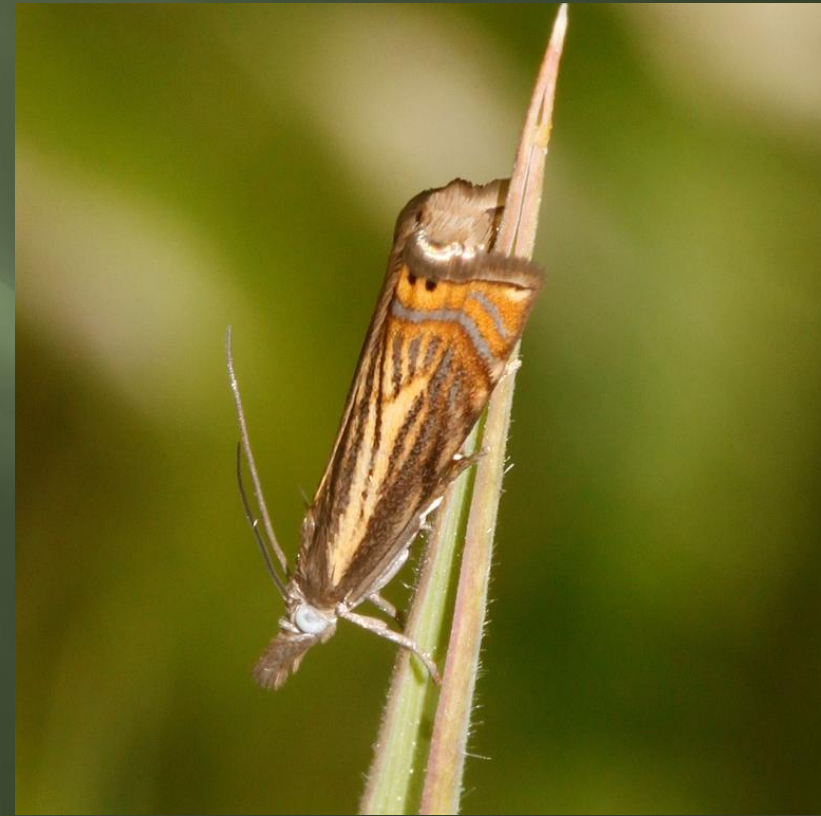
2015: Sightings

- ▣ Other groups went to Metchosin's Crown Land parcels



Misumena vatia
Goldenrod Crab Spider

540 species, 120 new



Chrysoteuchia topiaria
topiary grass-veneer moth

MycoBlitz 4 / 2015

- ▣ November 7 2015. Overcast.
- ▣ Headquarters: Metchosin Municipal Hall
- ▣ 20 experts



2015: People

- ▣ *Four of the MycoBlitz experts, (left to right) Andy MacKinnon, Leanne Gallon, Daryl Thompson, and Luke Mikler, show off their mushroom clothes and accessories to the gathered crowd of 2015 MycoBlitz searchers.*



2015: Sightings

- ▣ *Tubaria punicea*, the Christmas Naucoria

165 species,
32 new



BioBlitz 6 / 2016

- ▣ May 9 2016. Sunny
- ▣ New format: BioBlitz and Biodiversity Day
- ▣ Surveys at DND William Head and Albert Head



2016: Sightings



- ▣ Phil Lambert's very cool brachiopod

667 species, 130 new

2016 Biodiversity Day

April 30 2016



MycoBlitz 5 / 2017

- ▣ November 4 2017. Rain/show/sleet
- ▣ Surveys at Camp TBird, Van der Meer, Pearson

Roo Vandergrift, U of Oregon
Lots of fabulous ascomycetes!



MycoBlitz 5 / 2017



Chrysomphalina aurantiaca. Photo by
Luke Mikler. ↑

155 species, 45 new

Deer Mushroom (*Pluteus exilis*). Photo
by Roger St. Pierre



Taxonomic Group	Species
Vascular Plant	581
Bryophyte	148
Phytoplankton	18
Lichen	294
Fungus	475
Slime Mold	5
Alga	101
Vertebrate	193
Invertebrate	576
TOTAL	2392
Red-listed	24
Blue-listed	29



Two of BC's best truffle-hounds:
Larissa and Della, and Brooke
Fochuk with Dexter

Invertebrates	Species
Hymenoptera	37
Lepidoptera	119
Other Insects	118
Spider	102
Annelid-land	2
Slug	10
Snail-land	18
Brachiopod	61
Mollusc	1
Nemertean	2
Cnidaria	11
Arthropod	43
Echinoderm	16
Porifera	7
Polychaete	13
Rotifer	2
Bryozoan	4
Flatworm	2
Urochordate	4
TOTAL	576



Broom Seed Beetle (*Bruchidius villosus*)

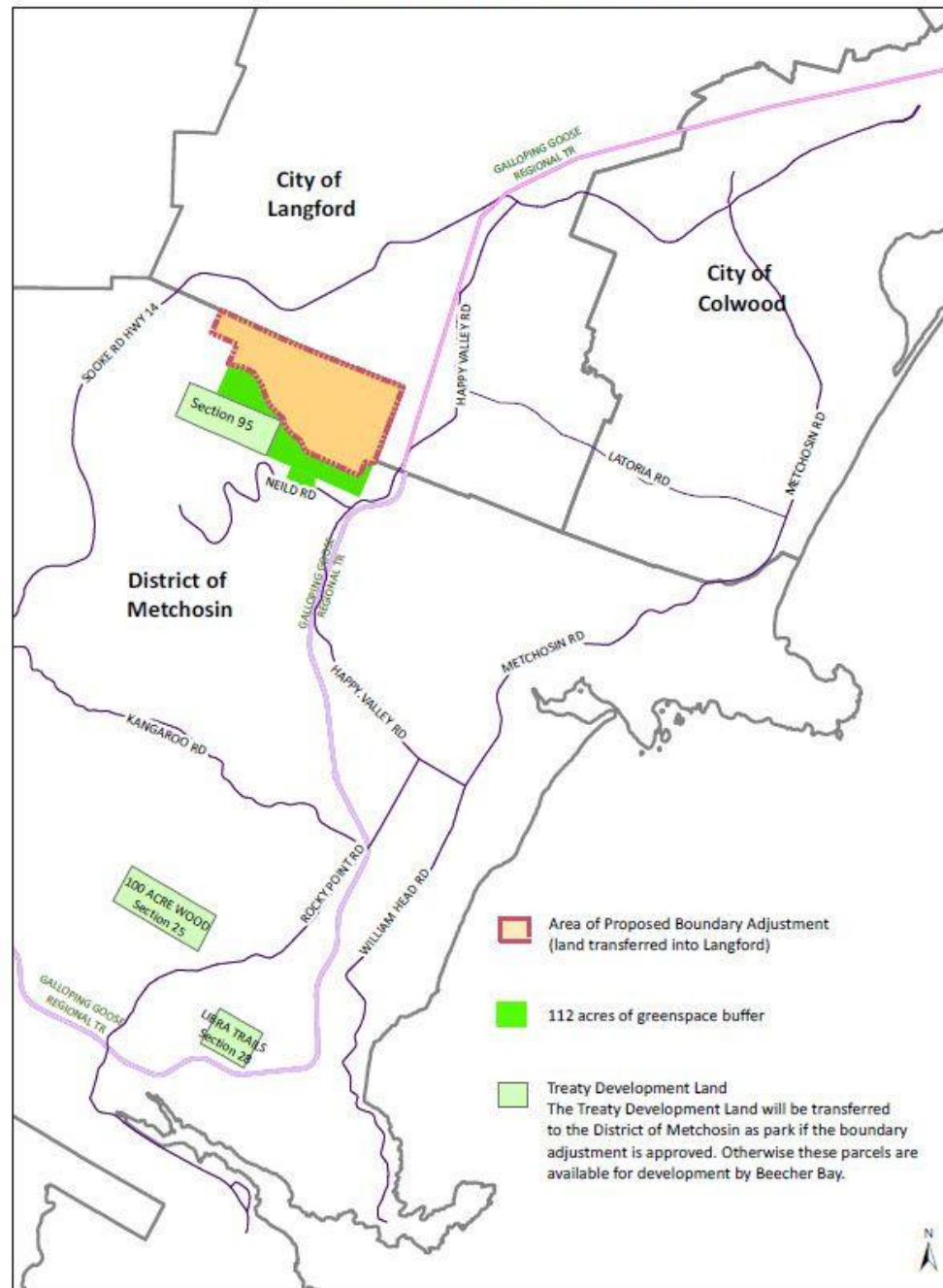
Deep Blue Sponge (*Hymenamphiastra cyanocrypta*)



Species Added	BB 2011	BB 2012	BB 2013	BB 2014	BB 2015	BB 2016	BB 2017
	845	350	493	349	150	151	73



Proposed Municipal Boundary Amendment



Lessons Learned

- ▣ difficult to address both survey and public participation goals in a single day
- ▣ need many, many years of survey
- ▣ not a good, systematic way for documenting what's out there, or how it's changing
- ▣ emphasis on species diversity overlooks species frequency (though this can sometimes be derived from multiple years of counts)
- ▣ there are species that we know are in Metchosin, but haven't recorded yet ...



Thank You

- ▣ A big thanks to everyone who has contributed to this volunteer project.

