

The Vermont Atlas of Life

Uniting People and Biodiversity Data for Conservation



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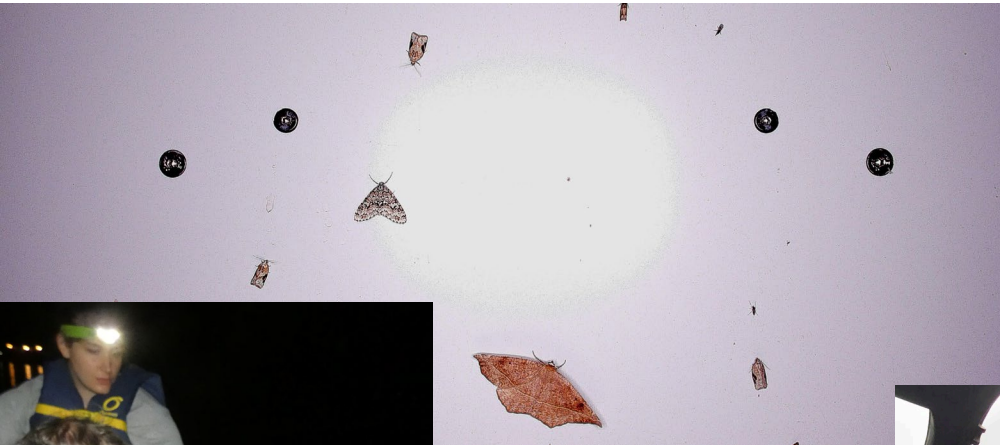
Vermont Center for Ecostudies advances conservation of wildlife across the Americas through research, monitoring, and community engagement. We deliver the science people need to make good decisions for wildlife.

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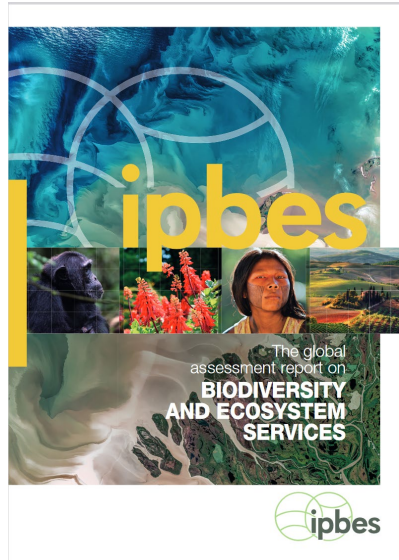
Vermont Center for Ecostudies

Uniting People and Science for Conservation



The worldwide biodiversity crisis:

As many as 1,000,000 species at risk of extinction



“The rate of global change in nature during the past 50 years is unprecedented in human history. The direct drivers of change in nature with the largest global impact have been (starting with those with most impact): changes in land and sea use; direct exploitation of organisms; climate change; pollution; and invasion of alien species.”

Vermont Atlas of Life (VAL): Bridging the biodiversity knowledge gap



We cannot respond effectively to climate change, natural disasters, invasive species, and other environmental and economic threats without a deep understanding of the state's biodiversity.



A decade of discovery: Primary biodiversity data



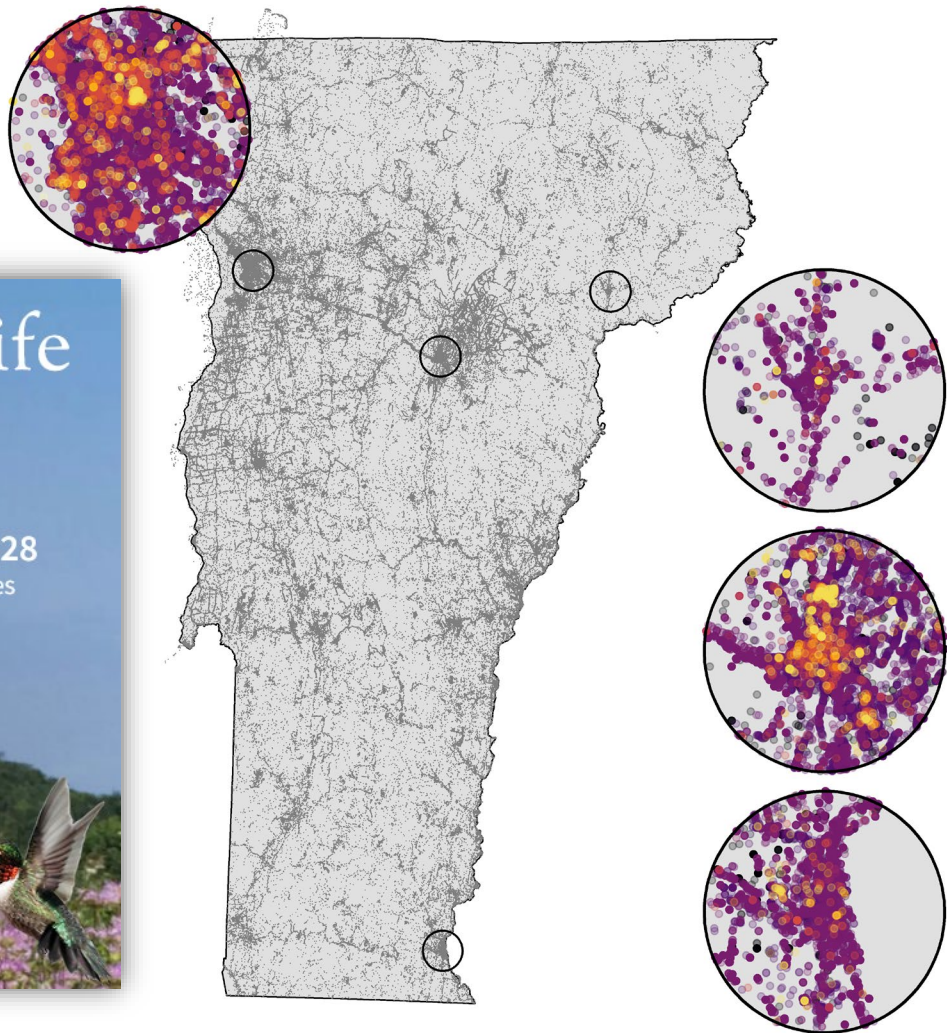
The Vermont Atlas of Life

Discovering and Sharing Biodiversity Knowledge

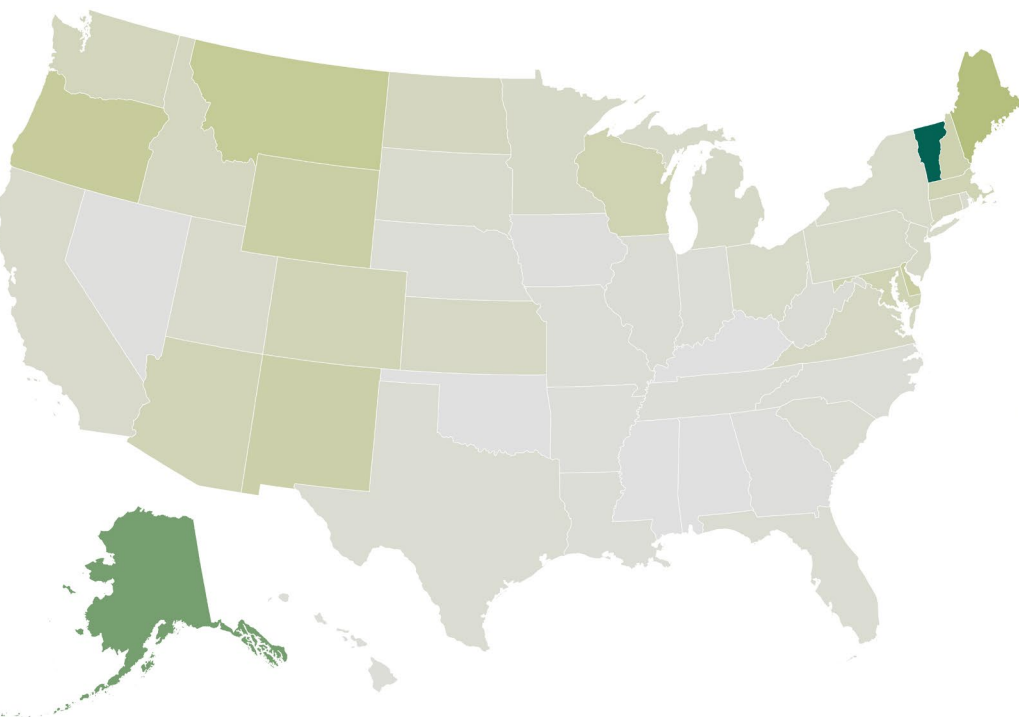
 10,039,230 records	 817 datasets	 14,328 species
 240 citations	 46,245 contributors	

Search the Atlas... 

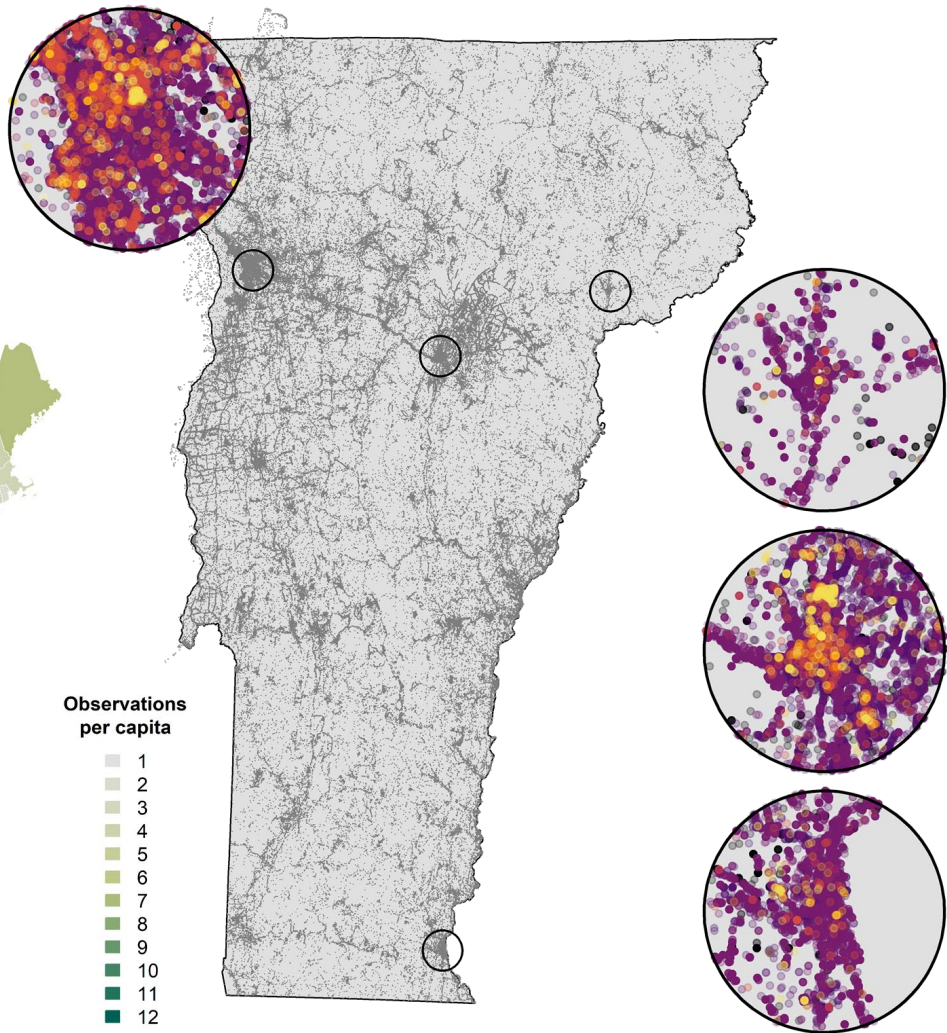
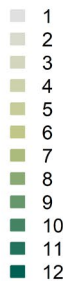
The background of the screenshot shows a hummingbird in flight over a field of purple flowers.



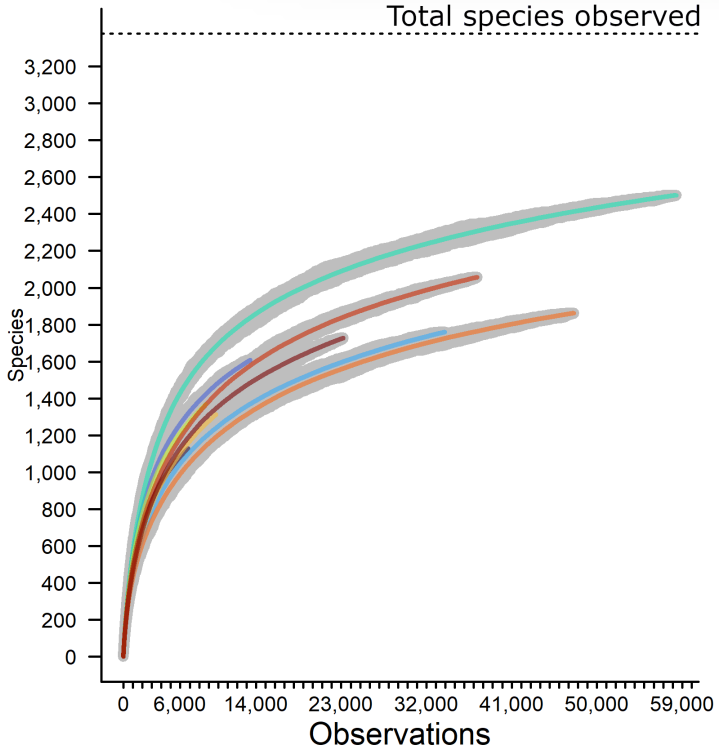
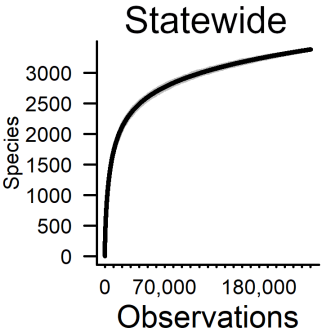
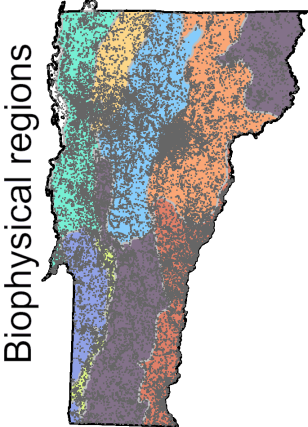
A decade of discovery: Community engagement



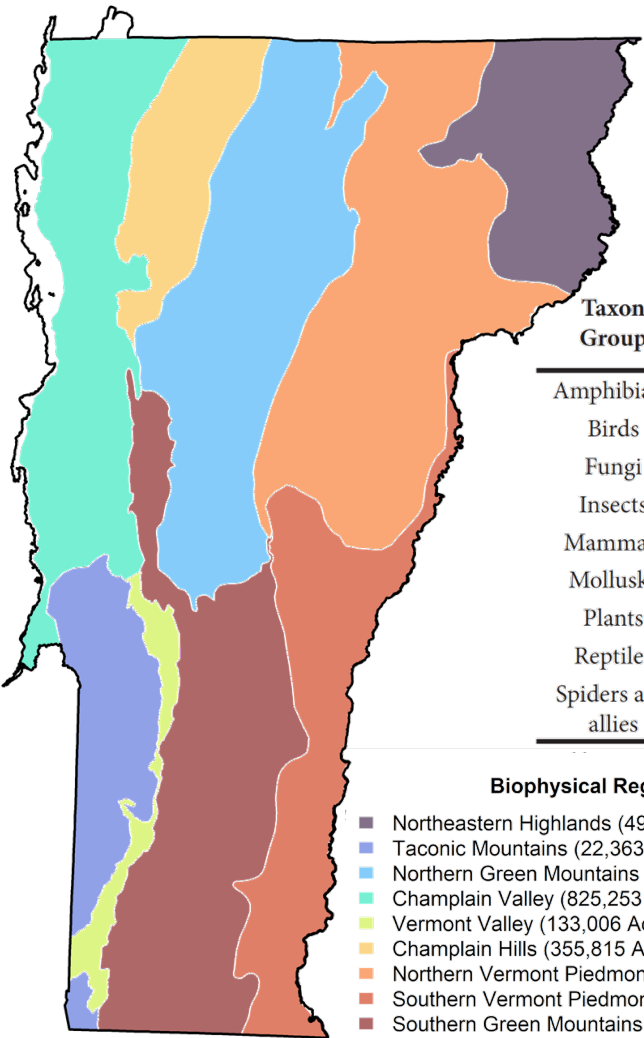
Observations
per capita



A decade of discovery: Enumerating species



A decade of discovery: Where species occur today



Taxon Group	Biophysical Region								
	Northeastern Highlands	Taconic Mountains	Northern Green Mountains	Champlain Valley	Vermont Valley	Champlain Hills	Northern Vermont Piedmont	Southern Vermont Piedmont	Southern Green Mountains
Amphibians	29	21	18	19	22	21	17	16	19
Birds	138	161	145	223	151	151	161	188	140
Fungi	462	379	393	381	412	373	310	454	430
Insects	332	281	481	581	358	390	514	531	306
Mammals	46	53	47	36	59	50	34	43	61
Mollusks	242	261	224	216	349	148	112	177	276
Plants	428	487	448	661	459	414	449	505	450
Reptiles	5	31	16	19	23	25	9	12	22
Spiders and allies	272	198	128	124	196	122	96	112	127

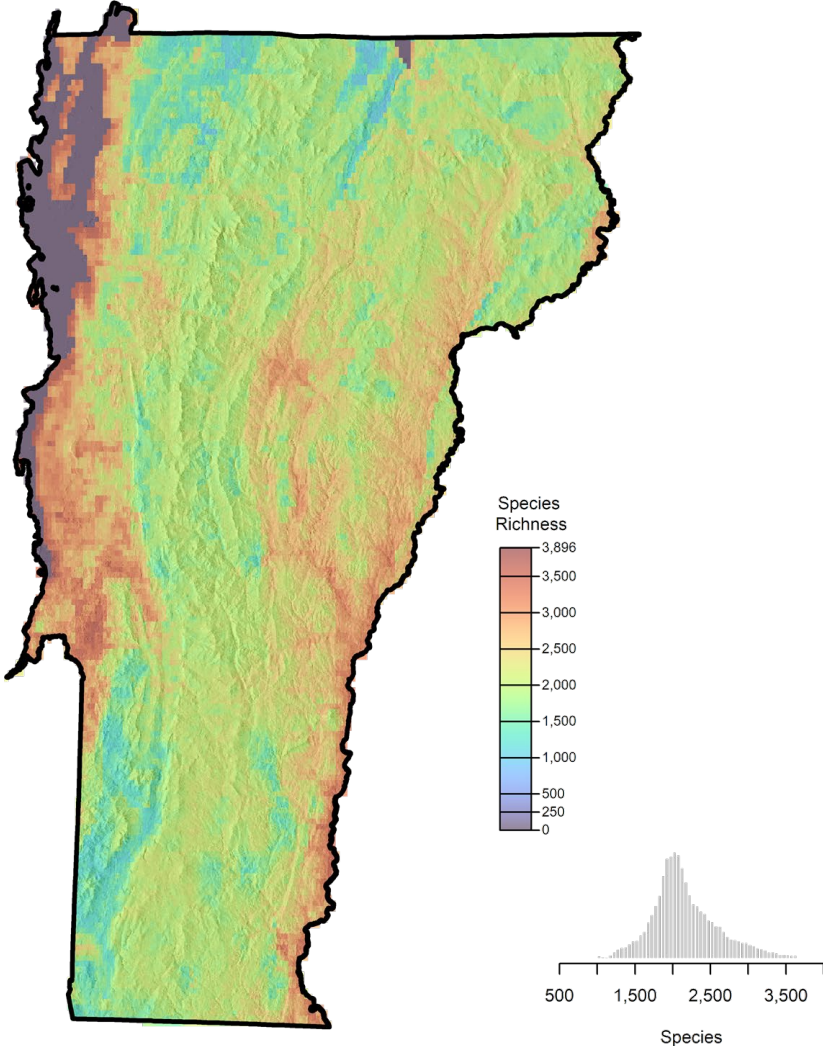
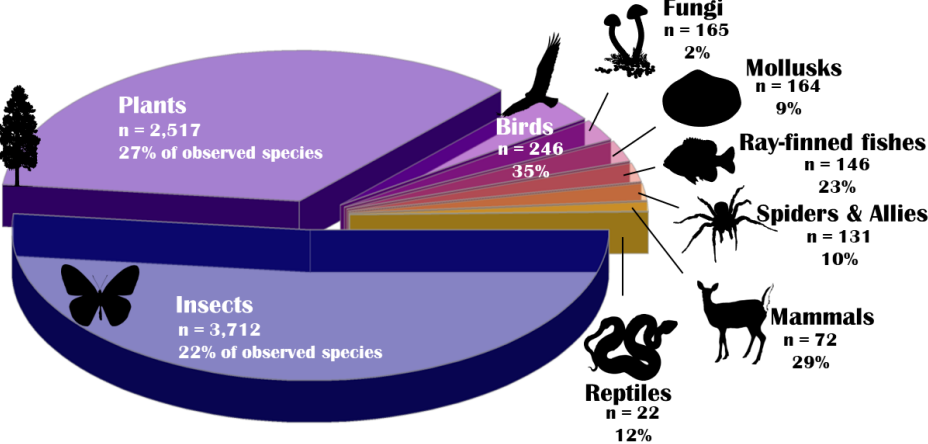
*estimated species per 1,000 observations

Biophysical Region

- Northeastern Highlands (492,192 Acres)
- Taconic Mountains (22,363 Acres)
- Northern Green Mountains (1,050,441 Acres)
- Champlain Valley (825,253 Acres)
- Vermont Valley (133,006 Acres)
- Champlain Hills (355,815 Acres)
- Northern Vermont Piedmont (1,188,421 Acres)
- Southern Vermont Piedmont (669,270 Acres)
- Southern Green Mountains (1,019,235 Acres)

A decade of discovery: Mapping biodiversity today

7,211
species distributions

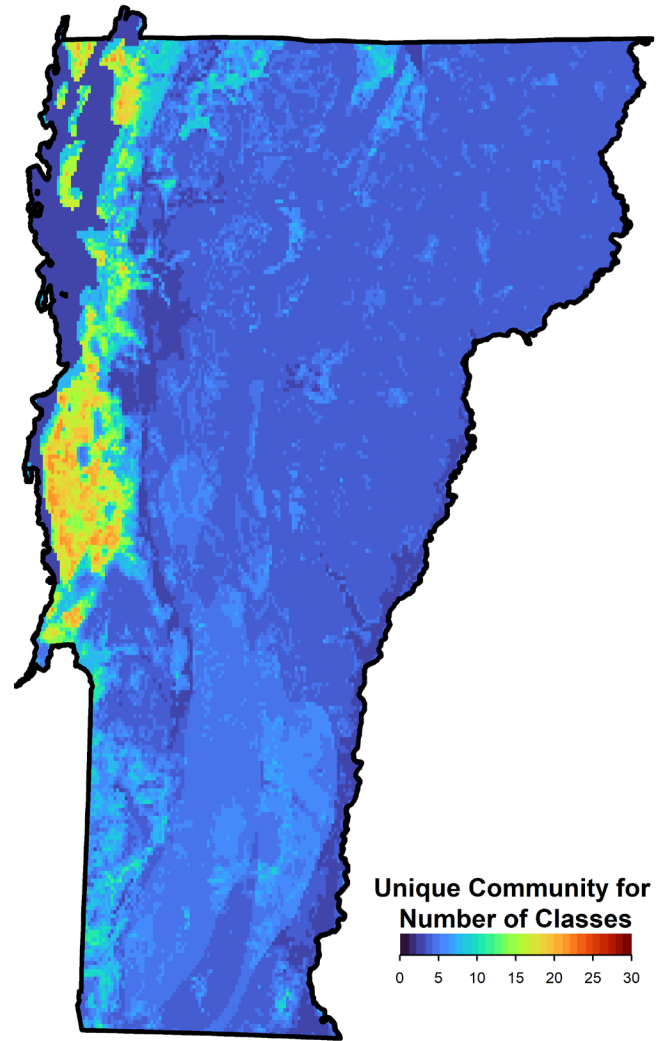


A decade of discovery: Identifying unique communities



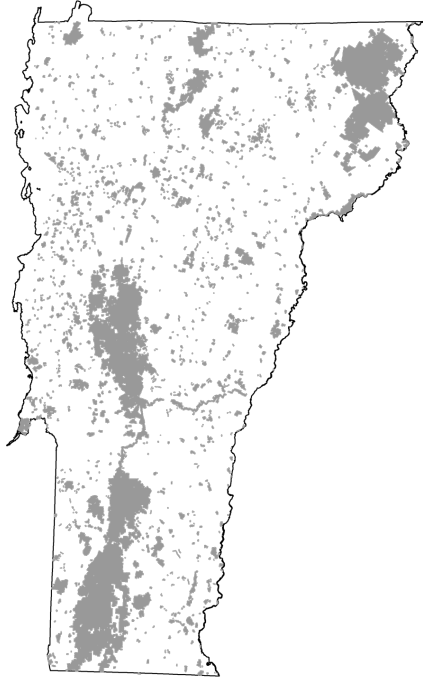
Areas that harbor unique communities are critical for maintaining biodiversity in the state.

We calculated community uniqueness for every taxonomic class that had three or more species with distribution models ($n = 30$).



A decade of discovery:

Conservation lands and the species they protect

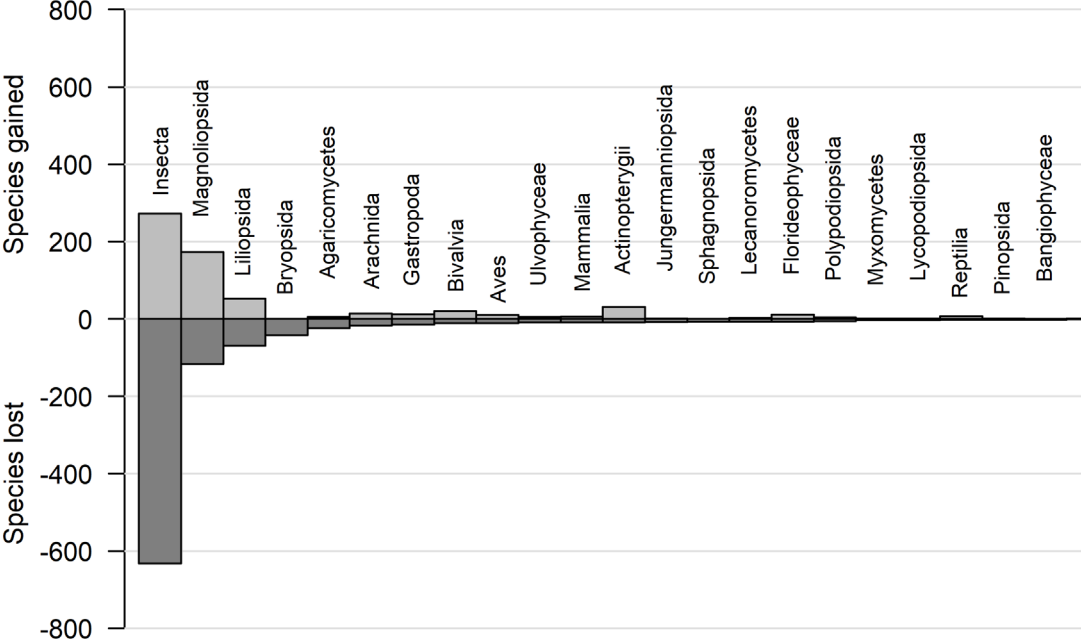


Distributions occurring within currently conserved lands (%)

S5 – Secure:	12%
S4 – Apparently Secure:	14%
S3 – Vulnerable:	13%
S2 – Imperiled:	17%
S1 – Critically Imperiled:	12%

Vermont's conservation lands, as currently configured, may not be adequately protecting species of greatest conservation need

Predicting the future: Changing biota

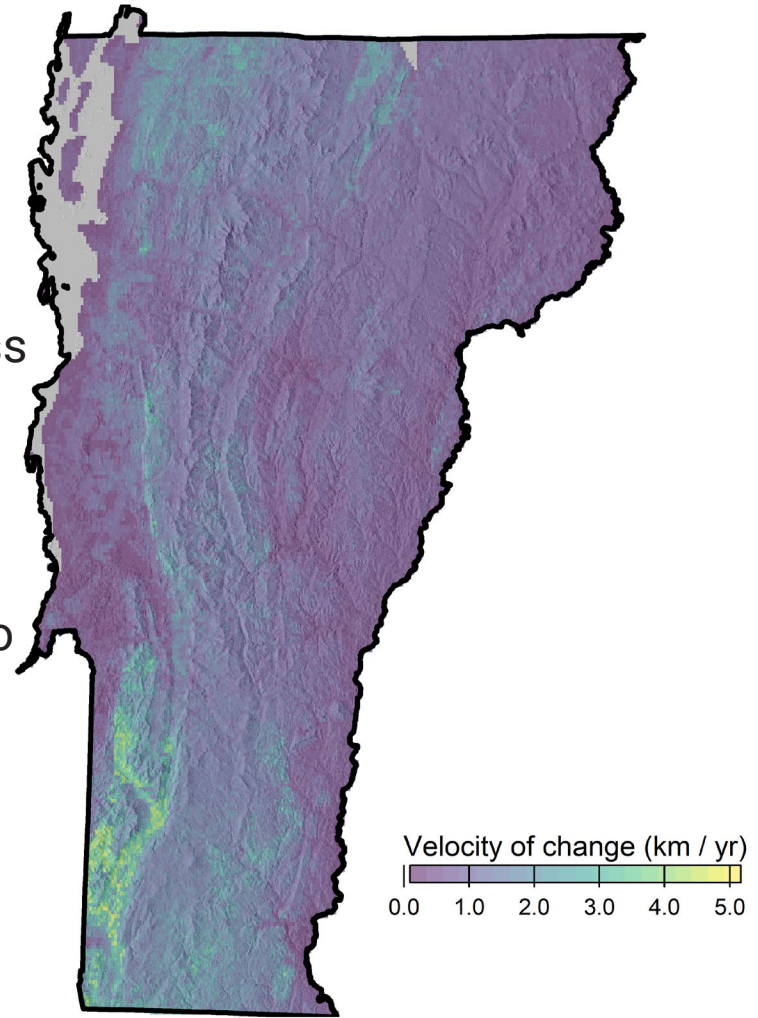


386 species (6%) are predicted to no longer occur in Vermont by 2100 given the business-as-usual carbon emission scenario (RCP 8.5)

Predicting the future: Velocity of change in richness

We calculated the rate of change in species richness between today and 2100. Areas with a low rate of change were deemed *species richness refugia*.

Species richness refugia may support a similar number of species within each taxonomic class into the future, if the proper habitat is available.

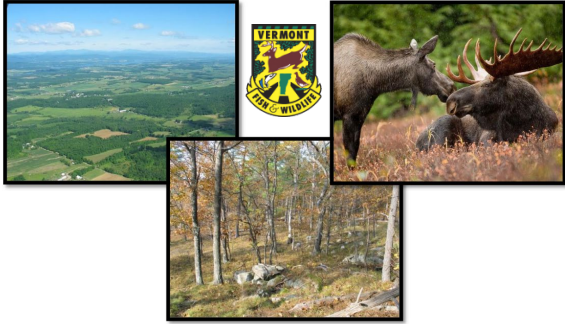


Planning for the future:

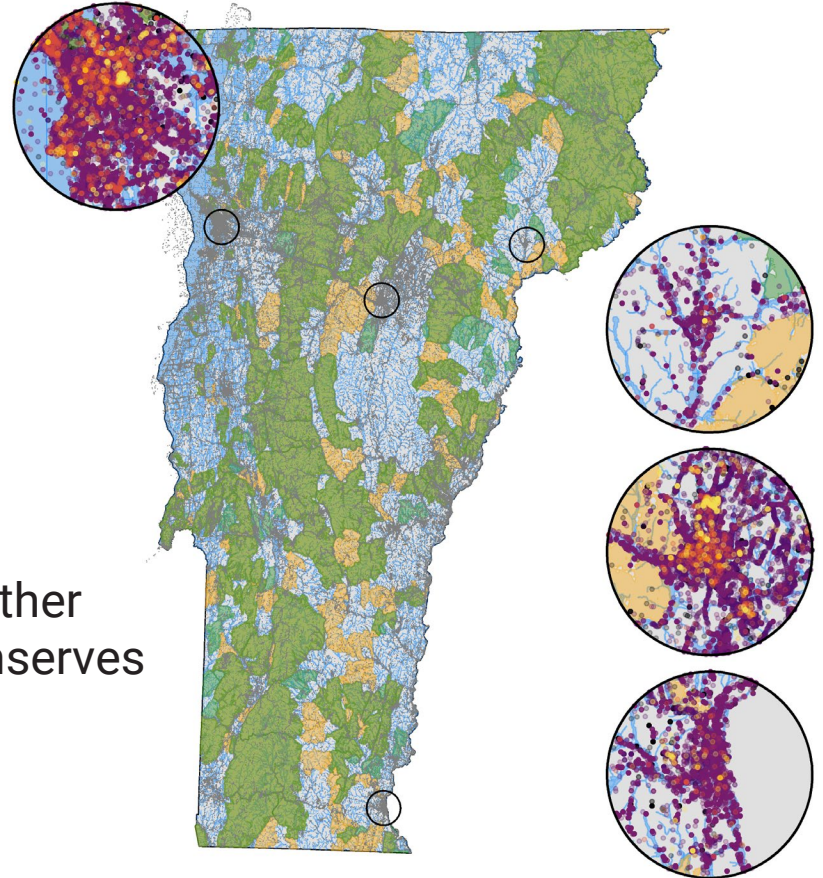
Uniting Coarse- and Fine-filter Strategies for Conservation

VERMONT CONSERVATION DESIGN

MAINTAINING AND ENHANCING AN ECOLOGICALLY FUNCTIONAL LANDSCAPE



Using state-wide biodiversity data to test whether Vermont Conservation Design adequately conserves Species of Greatest Conservation Need.



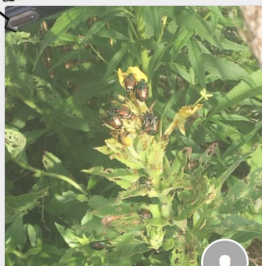
Vermont Atlas of Life: Conclusion



- 1 VAL is gathering essential data for biodiversity conservation - all curated at GBIF and searchable using the VAL Data Explorer
- 2 VAL's science products allow us to see the Vermont landscape in new ways, identify potential biodiversity hotspots and answer new questions
- 3 Our findings can be used to assess conservation design & help future decision-making
- 4 As community scientists gather massive amounts of biodiversity data, they also are becoming more engaged and invested in conserving the natural world.

Community scientist observations make this work possible

Thank you for being curious!

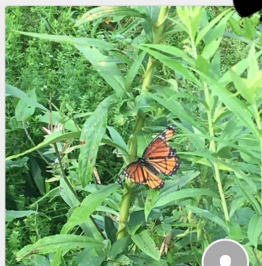


Japanese Beetle

(*Popillia japonica*)

Research Grade 1

3mo

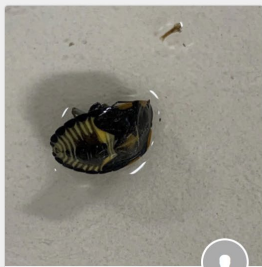


Viceroy

(*Limenitis archippus*)

Research Grade 2

3mo

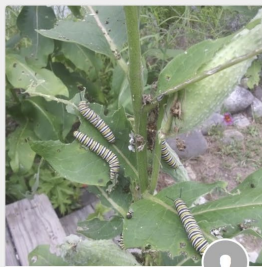


Green Stink Bug

(*Chinavia hilaris*)

Research Grade 2

2mo



Monarch

(*Danaus plexippus*)

Research Grade 1

3mo

Vermont Atlas of Life

Discovering and Sharing Biodiversity



Add Observations

View Species

Stats

Totals

1196204

Observations »

12587

Species »

26521

People »



Most Observations



erikamitchell

106556 observations



charlie

47894 observations



susanelliott

24129 observations



joshualincoln

21362 observations



bugeyedbernie

21037 observations

Most Species



erikamitchell

4092 species



origamilevi

3187 species



larry522

2815 species



susanelliott

2642 species



joshualincoln

2541 species

Most Observed Species



Black-capped Chickadee

6399 observations



Common Eastern Bumble Bee

6039 observations



American Robin

5870 observations



Monarch

5604 observations



Eastern Newt

5129 observations

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