

## Species Vulnerability Indices

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## Species are Important!



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## Vulnerability Indices can...

- ... save R & D time
- ... remind you about vulnerability factors
- ... compare apples and oranges
- ... promote transparency

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## Vulnerability Indices cannot...

- ... turn garbage into gold
- ... tell you the relative importance of different vulnerability factors
- ... replace in-depth VAs of species

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System for Assessing Vulnerability of Species (SAVS) to Climate Change (Forest Service)



Framework for categorizing the relative vulnerability of threatened & endangered species to climate change (EPA)



Climate Change Vulnerability Index (NatureServe)



Climate Change Sensitivity Index (University of Washington and TNC)



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All:

- are potentially rapid
- score individual factors
- produce categories of relative vulnerability
- address uncertainty

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## Differences:

Species covered

Structure, variables included

Abundance, range, and demographics

Scale for use

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## SAVS



[www.fs.fed.us/rm/grassland-shrubland-desert/products/species-vulnerability](http://www.fs.fed.us/rm/grassland-shrubland-desert/products/species-vulnerability)

Terrestrial vertebrates

Habitat, physiology, phenology, biotic interactions

Abundance, range, demographics considered implicitly

Scale: habitat/management area

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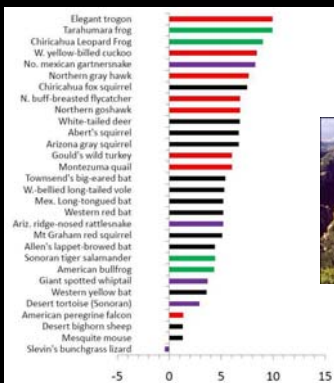
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Coronado National Forest



Coe et al. 2010

Less Vulnerability More

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## Duplicate Conservation Status Assessments?

	Extremely Vulnerable	Highly Vulnerable	Moderately Vulnerable	Presumed Stable	Increase Likely
G1					
G2					
G3					
G4					
G5					




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209 spp

	Extremely Vulnerable	Highly Vulnerable	Moderately Vulnerable	Presumed Stable	Increase Likely
G1	10	11	25	9	0
G2	2	4	5	3	1
G3	0	4	3	11	1
G4	1	1	6	24	3
G5	0	2	7	61	15

p<0.001




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Climate Change Sensitivity Database

<http://climatechangesensitivity.org>

Pacific Northwest focus

Plants/animals, terrestrial/aquatic/marine

Sensitivity only

Scale: species range within Pacific Northwest

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Climate Change Sensitivity Database

**Aegolius funereus - Rangewide with emphasis on PNW**

June 5, 2010 by Jorge Tomasevic  
Author(s) Expertise: ✔ This species is complete

Login or register to post comments    Print species as a PDF

Sensitivity Factor	Sensitivity	Confidence
Generality/Specialist	6.00	3
Physiology	5.00	3
Life History	6.00	3
Habitat	7.00	3
Dispersal Ability	6.00	3
Disturbance Regimes	5.00	3
Ecology	5.00	3
Non-Climatic	6.00	3
Other (weight)		

**Sensitivity Score** 61 **High**  
**Confidence Score** 3 **Poor**  
**Overall User Ranking** 4 **Medium-High**

Common Name: Screech owl

Is this Species completed? Yes

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Climate Change Sensitivity Index

Species	Sensitivity score	Subjective Ranking	Confidence
EN	20	50	3
Snowshoe hare	30	40	3
Barned owl	35	45	3
Black bear	40	50	3
Johnston's leucostep	45	55	3
Taylor's checkerspot	40	45	3
Rare fish (gray crowfoot)	45	50	3
American marten	40	45	3
Chalky nuthatch	45	50	3
Van Dyke's salamander	40	45	3
Flying squirrel	45	50	3
Olympic marmot	40	45	3
Makah cougar	45	50	3
Keen's bat	40	45	3
Little brown bat	45	50	3
Olympic torrent salamander	40	45	3
Spotted Owl	45	50	3

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## Finding data for the index

- **Exposure:** Climate Wizard; WorldClim
- **Sensitivity/adaptive capacity:** literature reviews and expert elicitation, existing web-based tools (ex: NatureServe Explorer, GAP, WUI)

- **Uncertainty**
  - Explore various climate models
  - Can explicitly address during input by omitting responses or providing multiple responses



Wildland-Urban Interface  
Silvus Lab, U of WI

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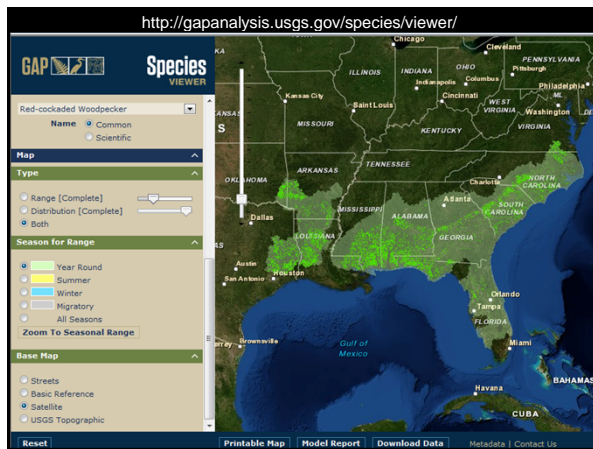
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