



Using Vulnerability Assessments to inform Species Recovery Planning

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October 10th, 2017



For Today:

1. The WDFW Climate Change Vulnerability Assessment
– *what we did and lessons learned*
2. Applying the findings
– *how are we using the new information?*

The 2015 State Wildlife Action Plan required us to ...

1. Identify species and habitats of greatest conservation need.
2. For each, describe key threats and conservation actions needed.

Species of Greatest Conservation Need	
invertebrates	95
fish	51
amphibians	14
reptiles	12
birds	52
mammals	44
Grand Total	268



What about climate

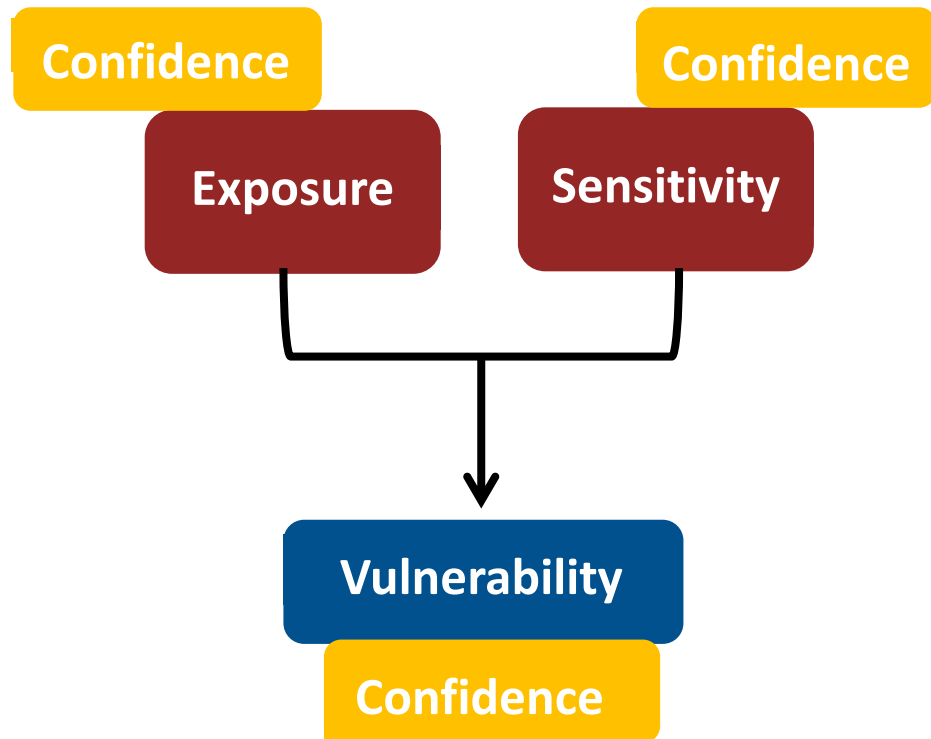
We wanted consistent, credible
information for all SGCN.

- For what species is climate change likely to be a significant factor?
- When should we design conservation actions around climate?

We teamed with EcoAdapt to conduct a climate change vulnerability assessment for 268 SGCN

Purpose of a vulnerability assessment:

Identify *what* resources are most vulnerable and *why*

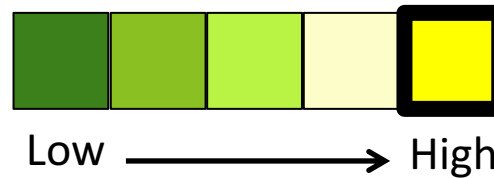


Example: Lynx

Vulnerability:

HIGH

High Confidence



Exposure



HIGH (5)

High Confidence

Sensitivity



HIGH (5)

High Confidence



- Air temperatures
- Wildfire regimes
- Earlier Snowmelt
- Insect/disease

- Adapted to and dependent on cold, high elevation habitats
- Warmer temperatures and reduced snowpack may limit prey availability
- Altered fire regimes that degrade/eliminate habitat



CONFIDENCE

High

Moderate

Low

Low

Moderate

High

VULNERABILITY



CONFIDENCE

High

Moderate

Low

Low V/High C

High V/High C

Mod V/Mod C

Low V/Low C

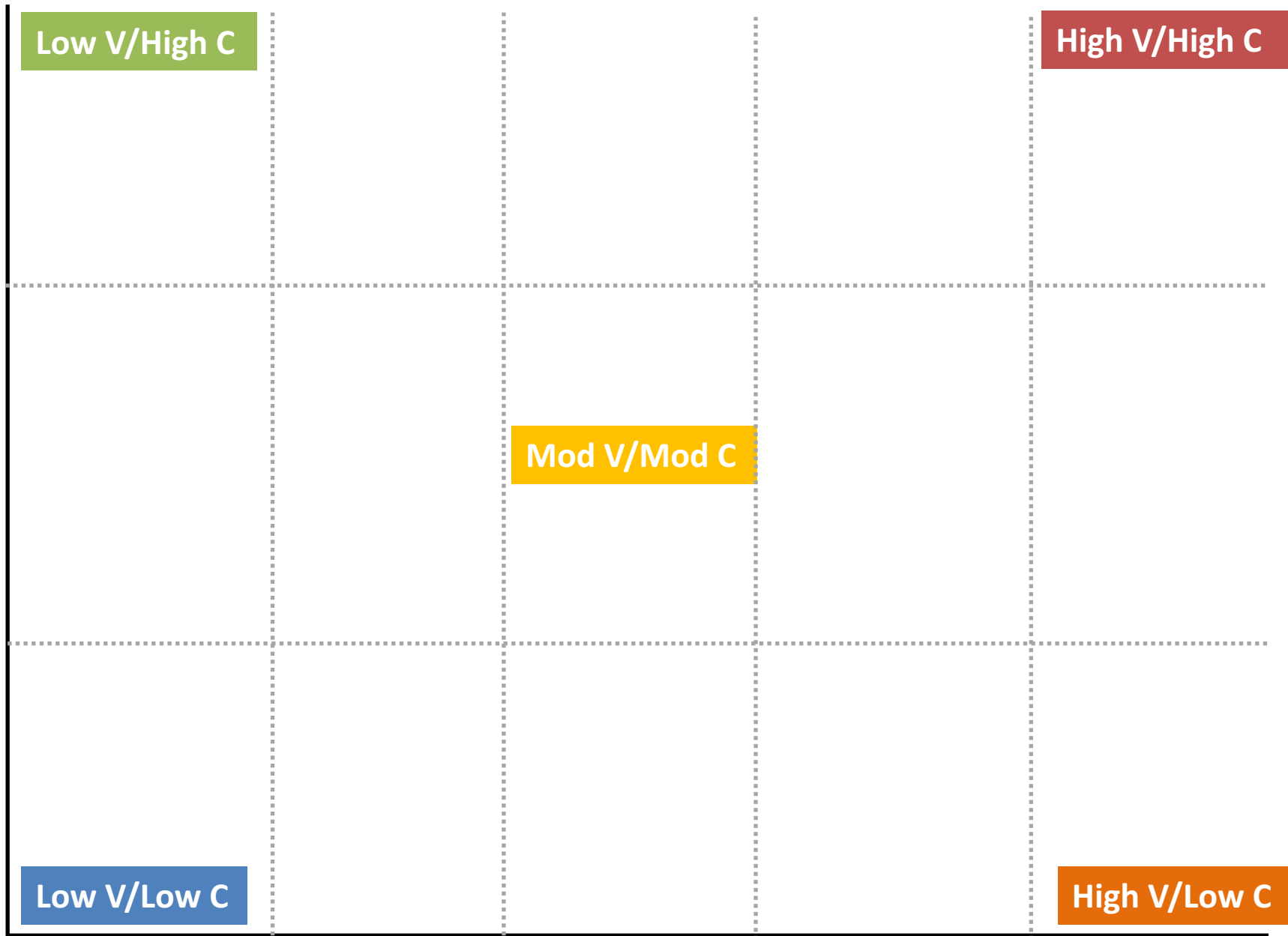
High V/Low C

Low

Moderate

High

VULNERABILITY



CONFIDENCE

High

Moderate

Low

Low V/High C

Tiger Salamander

High V/High C

- Cascade Torrent Salamander
- Olympic Torrent Salamander

Mod V/Mod C

- Green Sea Turtle
- Leatherback Sea Turtle
- Side-blotched Lizard
- Western Toad

- Columbia Torrent Salamander
- Cope's Giant Salamander
- Larch Mountain Salamander
- Loggerhead Sea Turtle
- Van Dyke's Salamander
- Columbia Spotted Frog
- Northern Leopard Frog
- Rocky Mountain Tailed Frog
- Woodhouse's Toad

- California Mountain Kingsnake
- Ring-necked Snake
- Striped Whipsnake
- Western Pond Turtle

Low V/Low C

- Pygmy Horned Lizard
- Sharp-tailed Snake

- Dunn's Salamander
- Oregon Spotted Frog
- Sagebrush Lizard

High V/Low C

Low

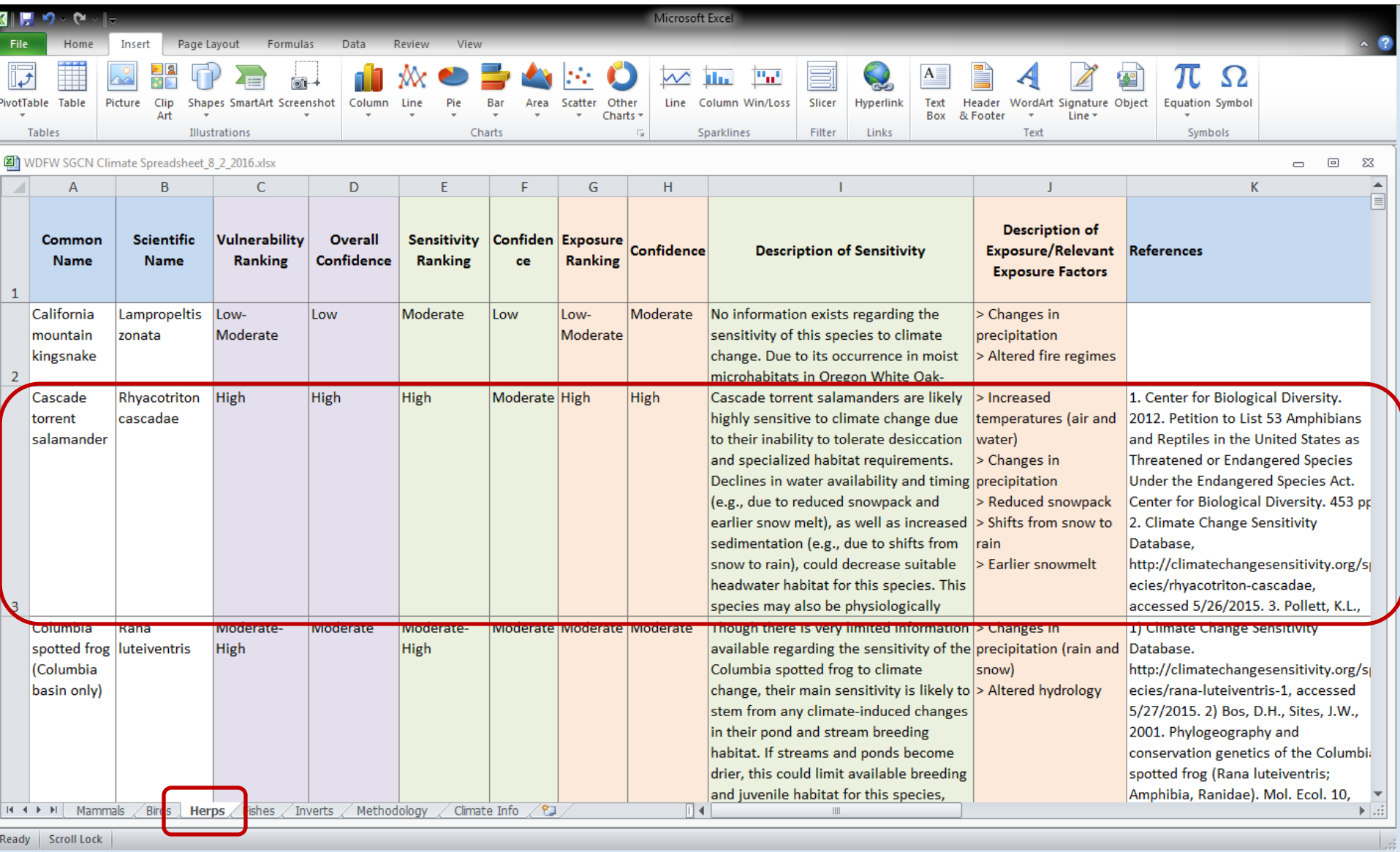
Moderate

High

VULNERABILITY

Table 5-1: SGCN – Preliminary Climate Watch List
SGCN with moderate-high or high vulnerability and high confidence.

MAMMALS	American Pika Cascade Red Fox Keen's Myotis Killer Whale Lynx Northern Bog Lemming Olympic Marmot Pacific Marten Wolverine Woodland Caribou
BIRDS	Spruce Grouse White-tailed Ptarmigan
AMPHIBIANS	Cascade Torrent Salamander Olympic Torrent Salamander Tiger Salamander
FISHES	Bull Trout Coastal Recovery Unit and Mid-Columbia Recovery Unit Hood Canal Summer Chum ESU Lower Columbia Chinook ESU Lower Columbia Coho ESU Lower Columbia and Middle Columbia Steelhead DPS Pacific Cod (Salish Sea Population) Pacific Herring Puget Sound Chinook ESU Puget Sound Steelhead DPS Snake River Chinook – Spring/summer ESU Snake River Basin Steelhead DPS Surf Smelt Upper Columbia Spring Chinook ESU Upper Columbia Steelhead DPS
INVERTEBRATES	Caddisfly ((Goereilla baumanni) Northern Forestfly Rainier Roachfly Olympia Oyster

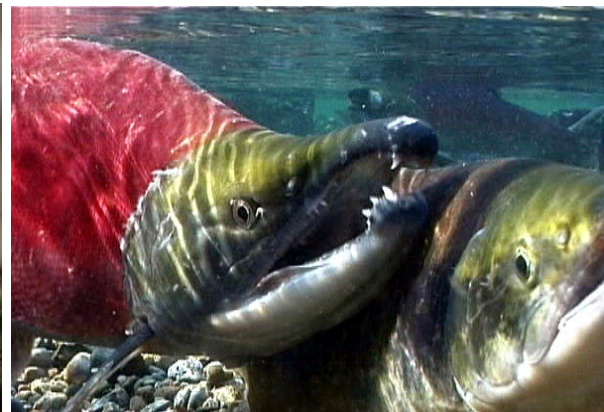
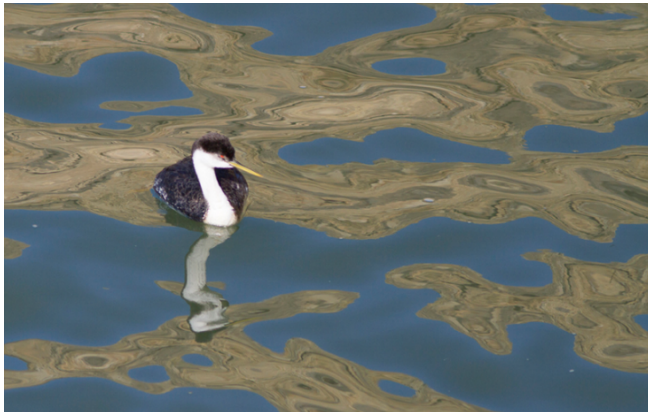


What worked well:

- Easy to access, tailored to our agency
- Makes impacts of climate change easier to grasp. Turns the abstract into something concrete.
- Confidence ranking as way to manage uncertainty

Lessons learned:

- The more transparency the better – “show your work”
- Because we have a great tool doesn't mean it will be used. Followup is essential! (Training, workshops, resources, directives).



Applying a “climate lens” to Management Priorities

How do we integrate what we know about
climate change vulnerability into species
recovery planning?

Vulnerability Assessment

Which SGCN are most vulnerable to climate change and why?

How will climate impact existing stressors?

Climate informed management actions for species at risk

The SWAP tells us:

1. Which SGCN at risk.
2. Key Stressors
3. Recommended management actions

CASCADE TORRENT SALAMANDER				
Stressor	Action Needed			
Lack of data on current status and distribution	Research to determine distribution, population status	Indirect/No Impact: Provides important baseline info for future actions but does not affect vulnerabilities directly		
Impacts from stream flooding, erosion and scouring	Leave suitable forested buffers on occupied streams	Indirect: Reduces non-climate stress on salamander	Direct: Helps mitigate for extreme precipitation and wind	Direct: Helps to keep water in streams during times of drought stress



BOTTOM LINE - SUMMARY

1. The Vulnerability Assessment provided a useful tool for staff – helped “demystify” climate change.
2. We learned that transparency and early engagement in the process is key.
3. Integrating the findings into management actions requires a concerted effort – a systematic approach.



THANK YOU!

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