

Assessing invasive plant risk and climate vulnerability to sensitive habitats in the California Central Coast region



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CALIFORNIA INVASIVE PLANT COUNCIL
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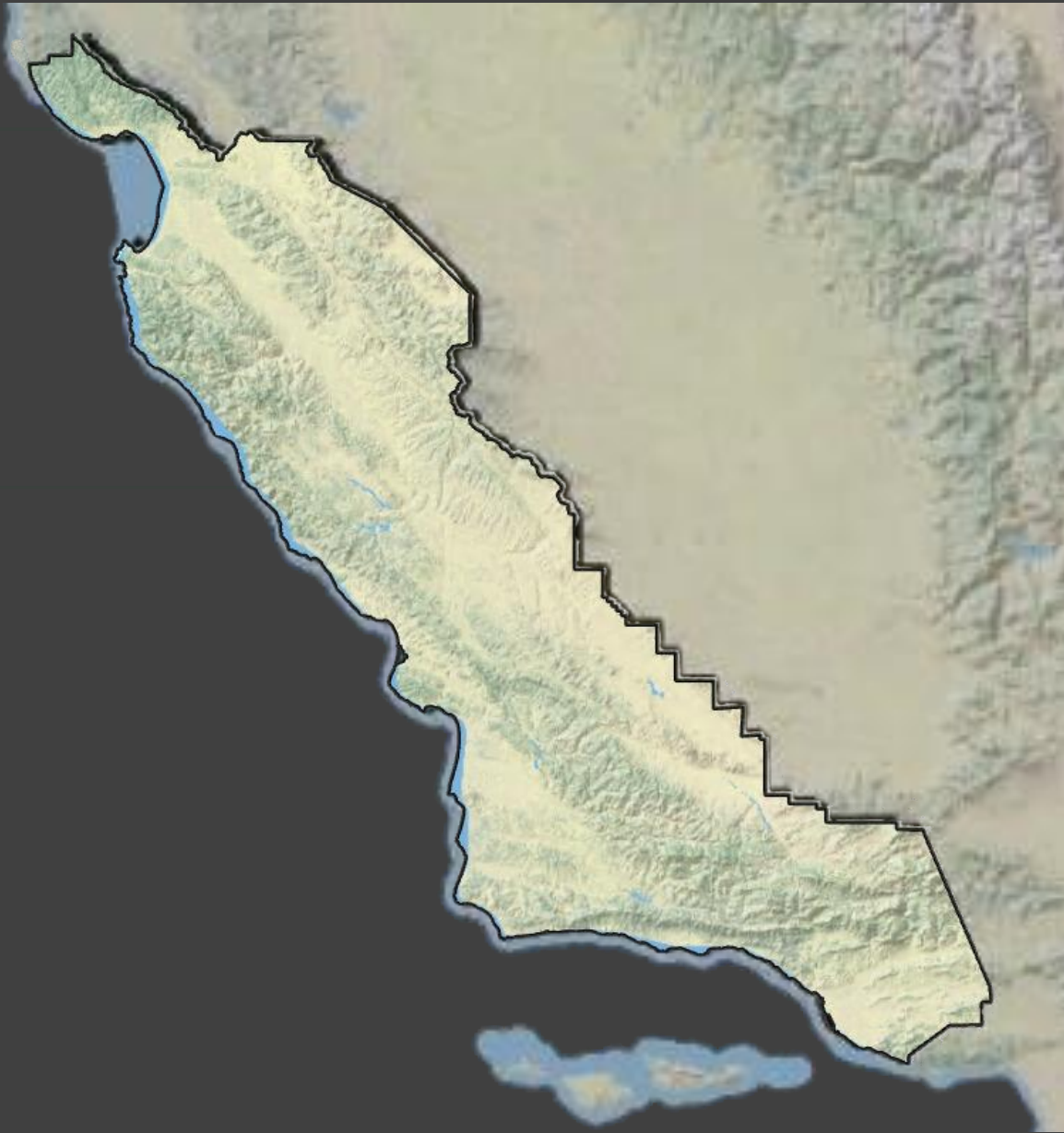
Sensitive Habitat Scores

Climate change and ongoing introductions of invasive plants threaten sensitive habitats in the central coast region of California.

In order to strategically address these invasive plant issues we developed scores for sensitive habitats in this region:

- Invasive Plant Risk Score
- Climate Change Vulnerability Score





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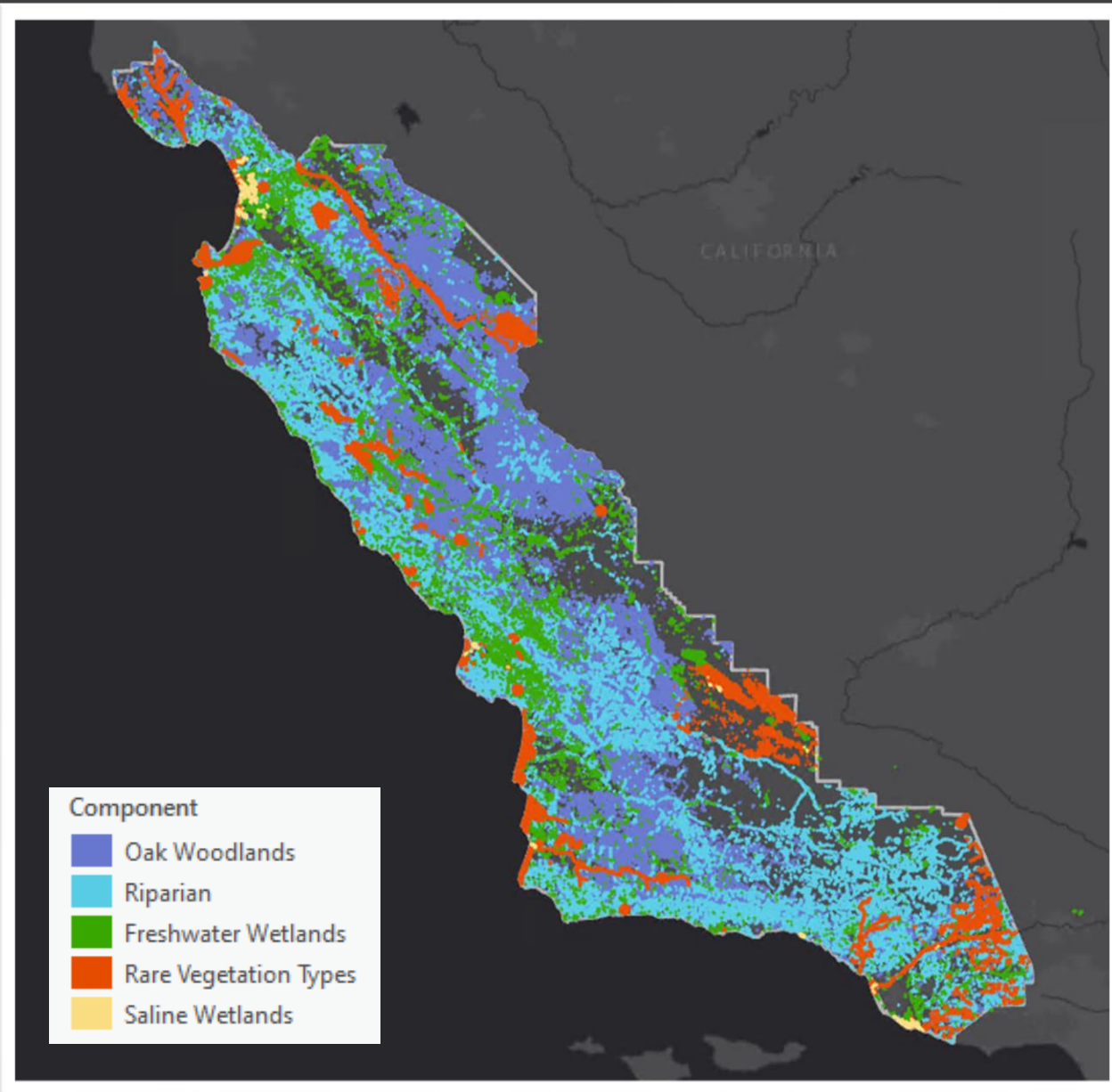
- Invasive Plant Risk Score
- Climate Change Vulnerability Score

Sensitive Habitats

- Based on CDFW's "Significant Terrestrial Habitats"

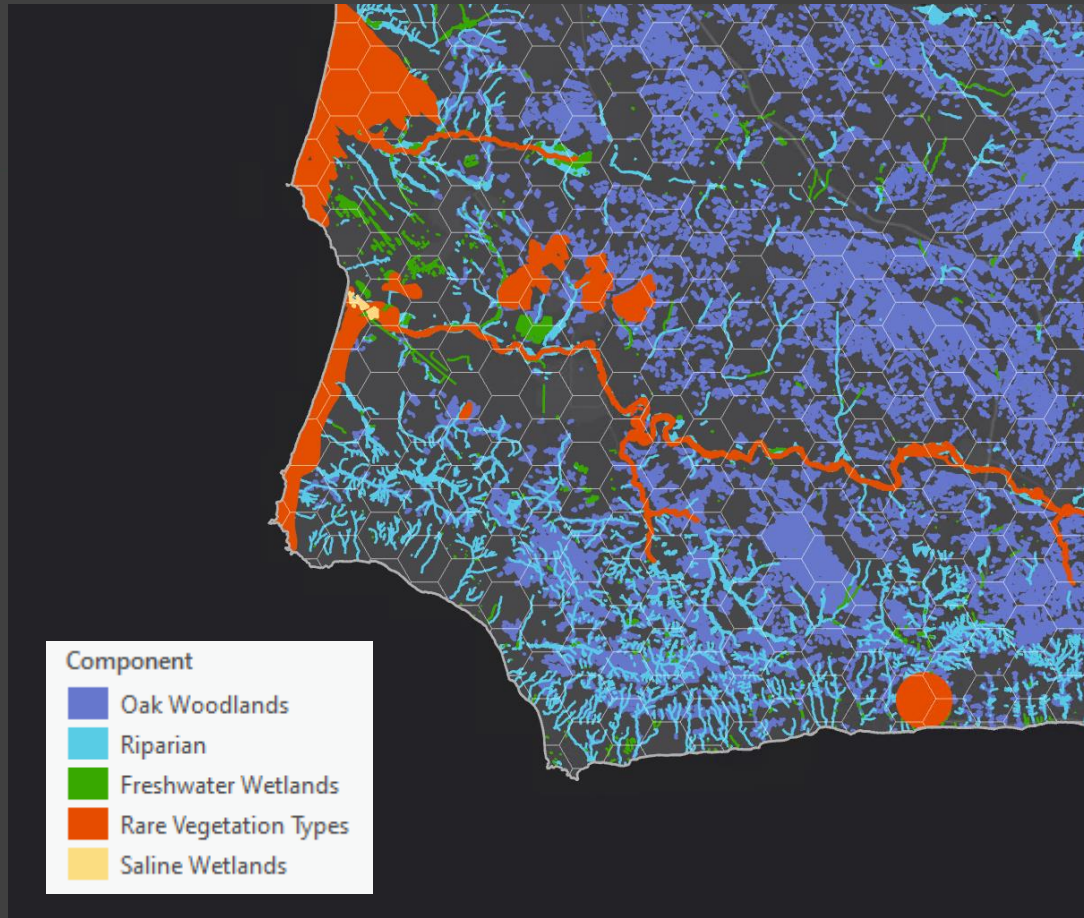
- Oak Woodland Habitats
- Riparian Habitats
- Freshwater Wetlands Habitats
- Rare Vegetation Types
- Saline Wetlands Habitat

- Dissolved overlapping sensitive habitat types to prevent duplication
- Some habitat types were listed under multiple component types (e.g. vernal pools)
- Excludes ponds
- We excluded sensitive habitats totaling less than 1.0 acre within a hexagon
- There are areas without sensitive habitats. Hexagons without sensitive habitat were not scored

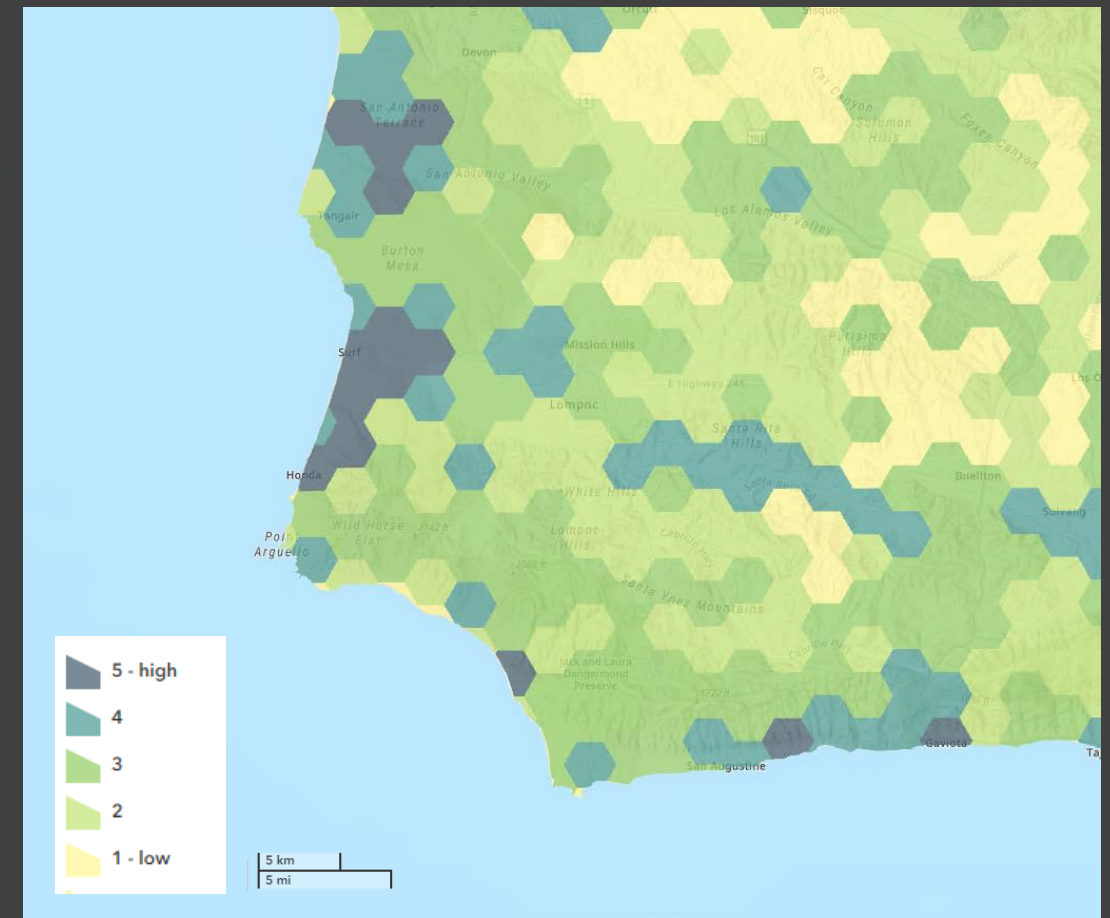


Comparison Between Sensitive Habitats

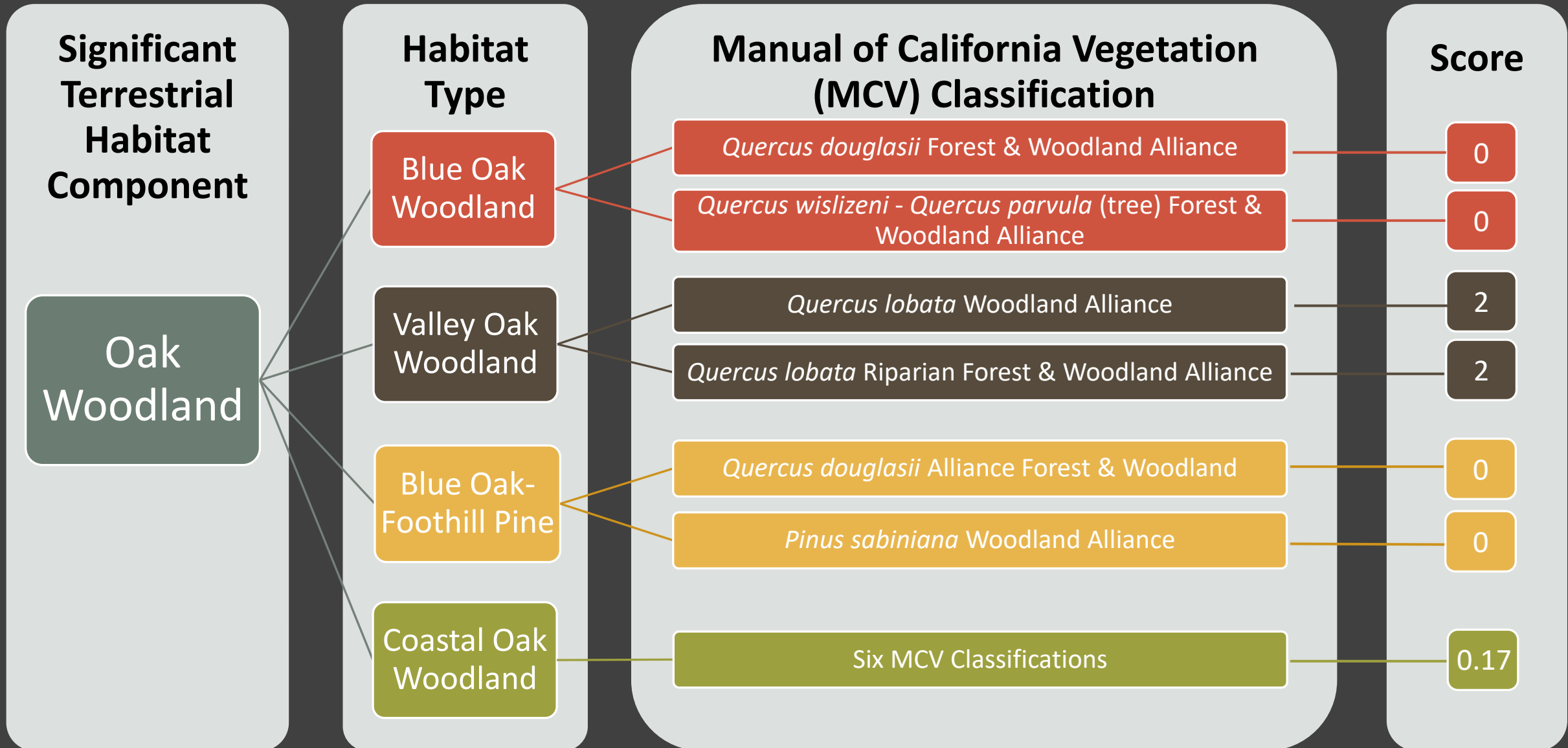
Cal-IPC

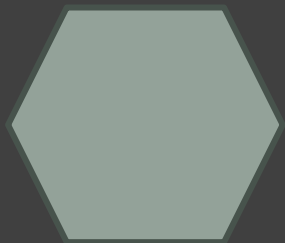


CDFW



Scoring Habitat Types

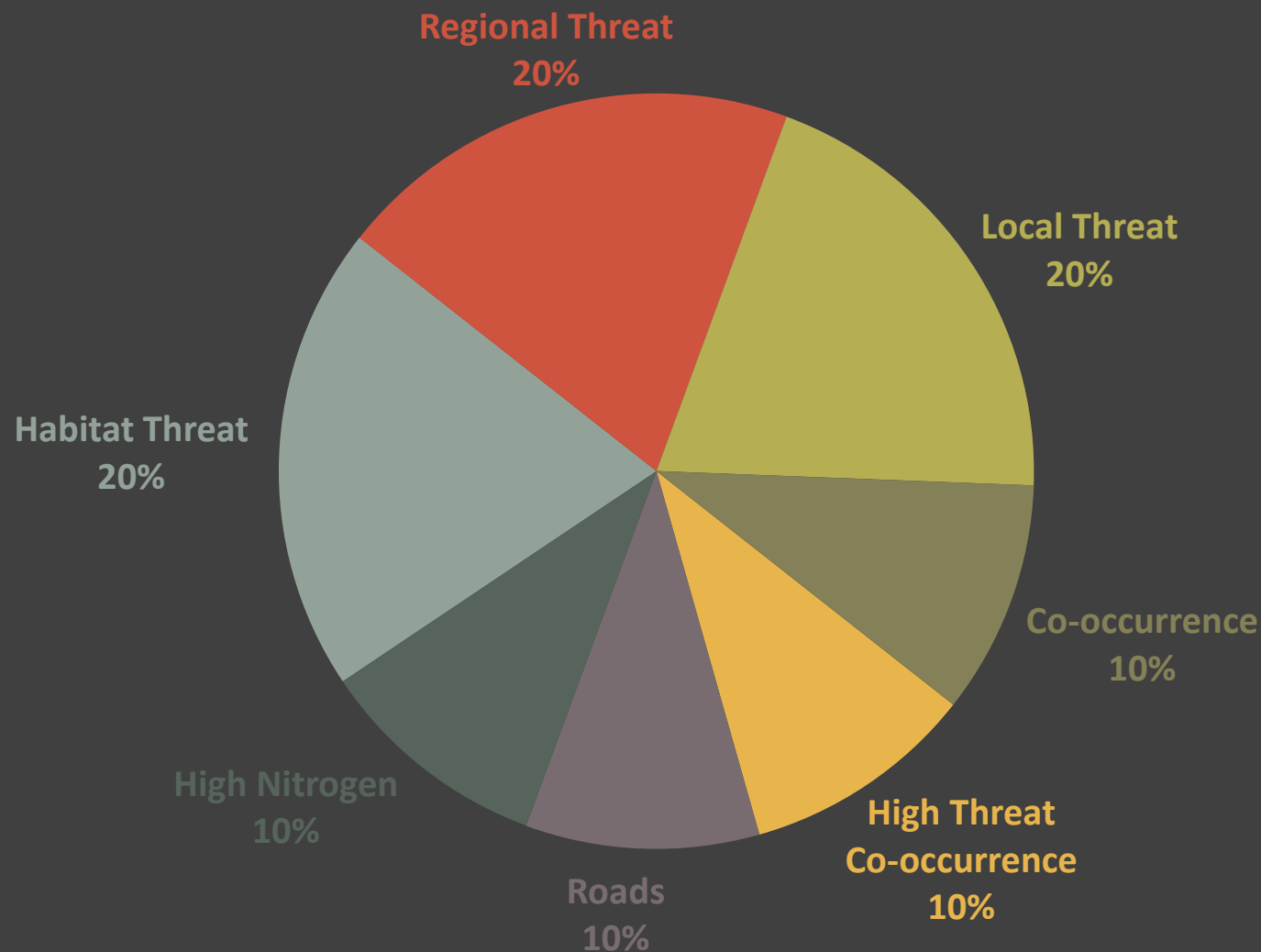


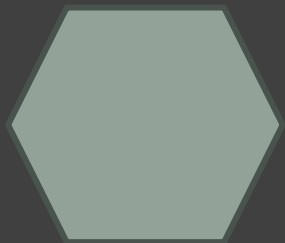


Scoring Hexes for Invasive Plant Risk

The **maximum** Invasive
Plant Risk Score is **10 points**

Serpentine
-10%

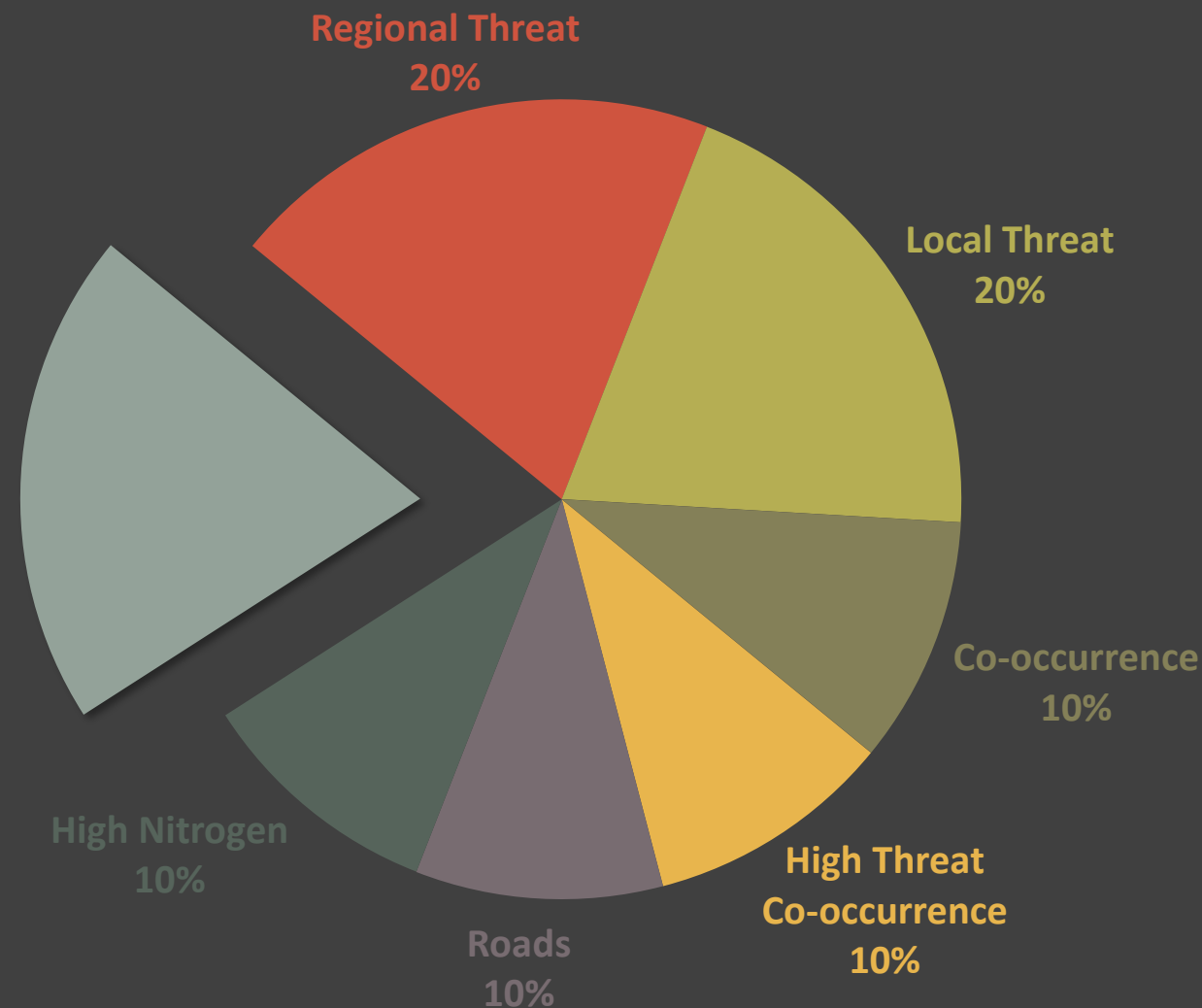


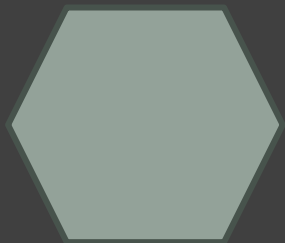


Scoring Hexes for Invasive Plant Risk

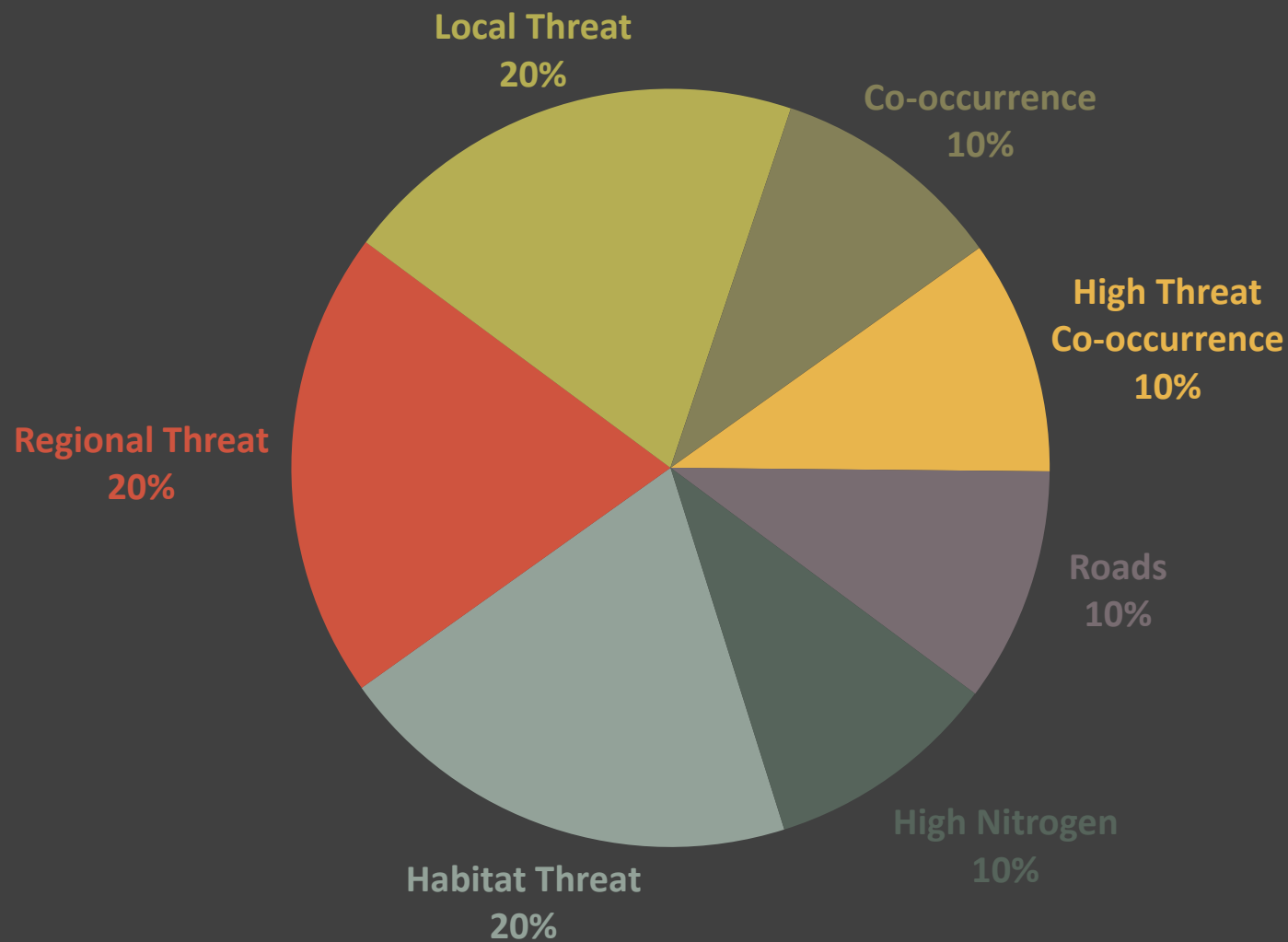
Habitat Threat 20%

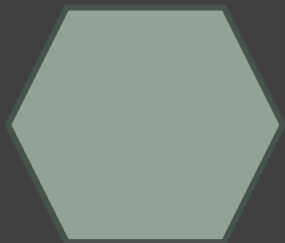
The maximum Invasive Plant Vulnerability score for any sensitive habitat occurring in the hexagon.





Scoring Hexes for Invasive Plant Risk

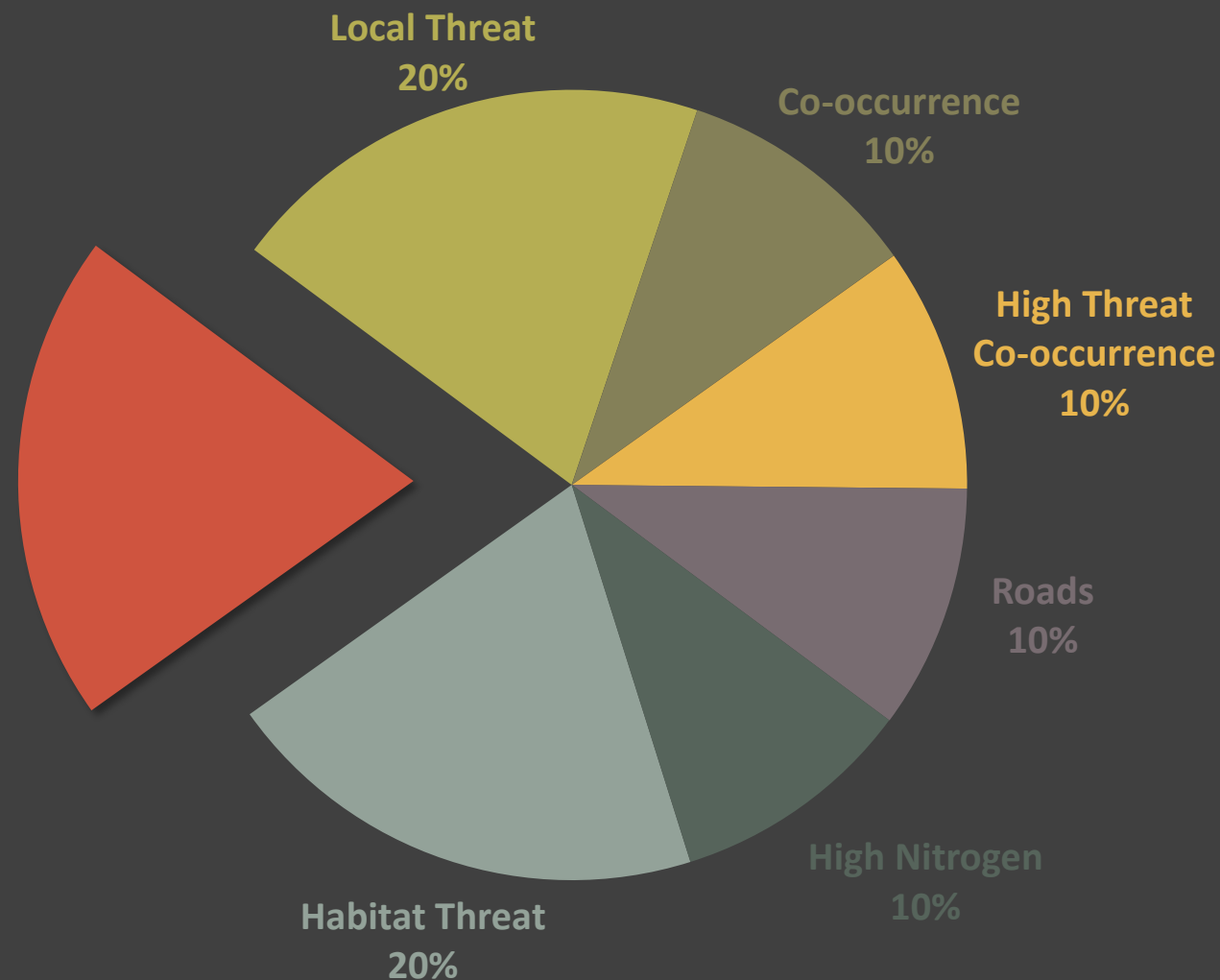


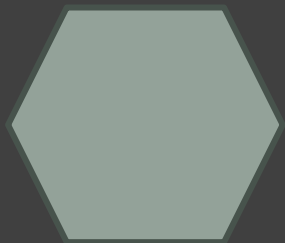


Scoring Hexes for Invasive Plant Risk

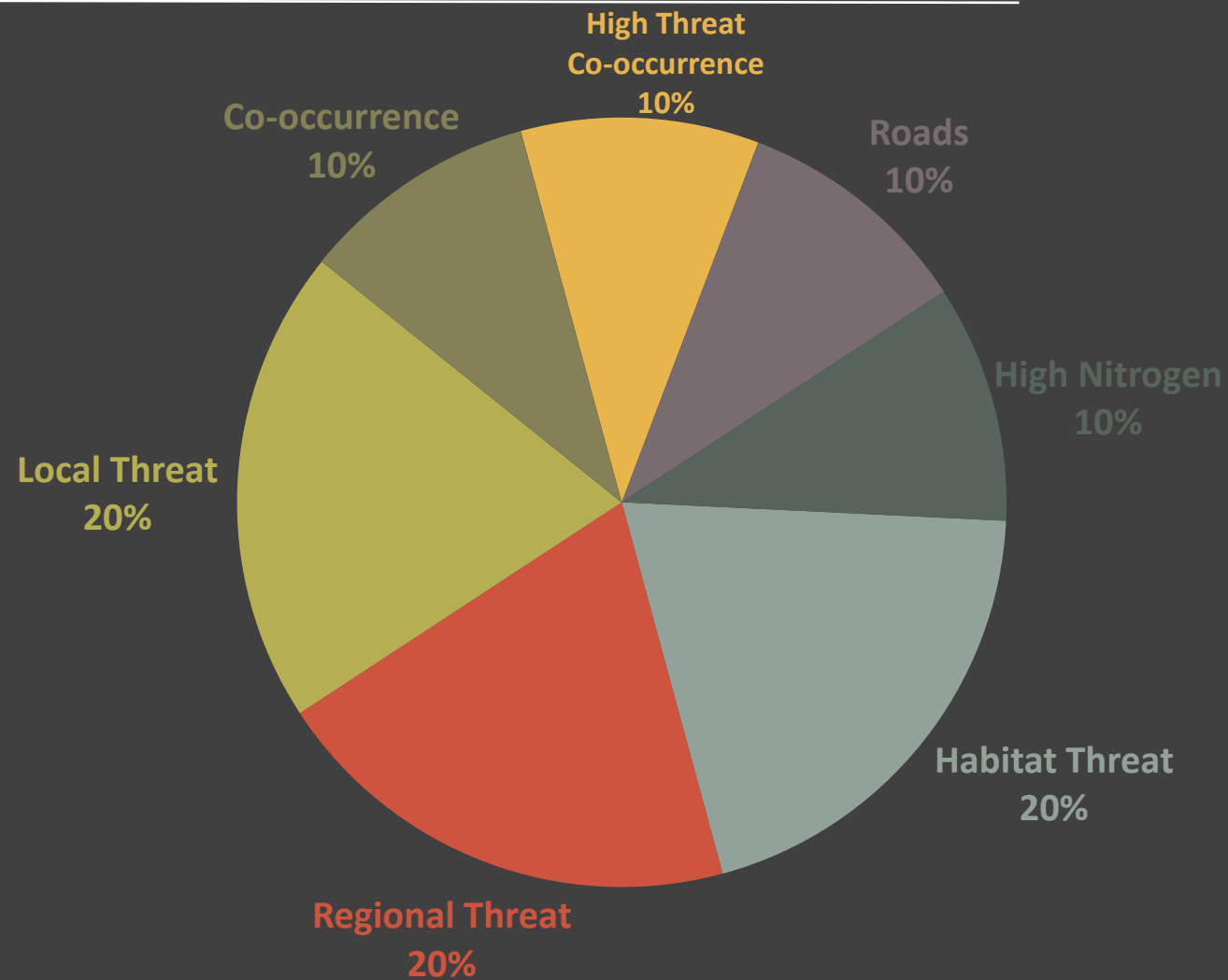
Regional Threat 20%

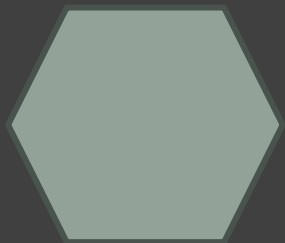
The level of invasive species documented in the hexagon.





Scoring Hexes for Invasive Plant Risk



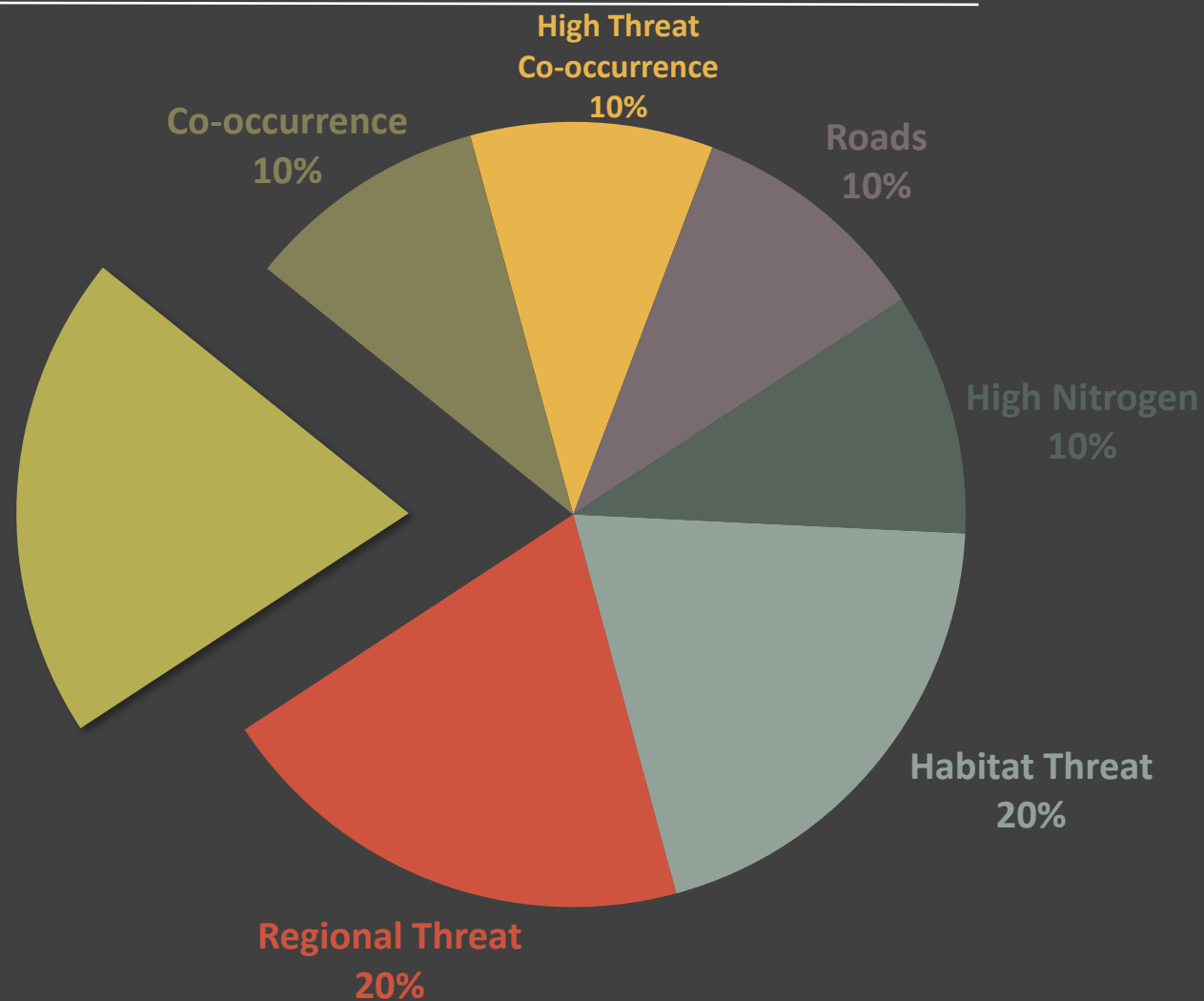


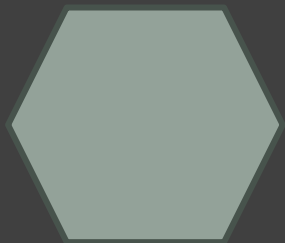
Scoring Hexes for Invasive Plant Risk

Local Threat 20%

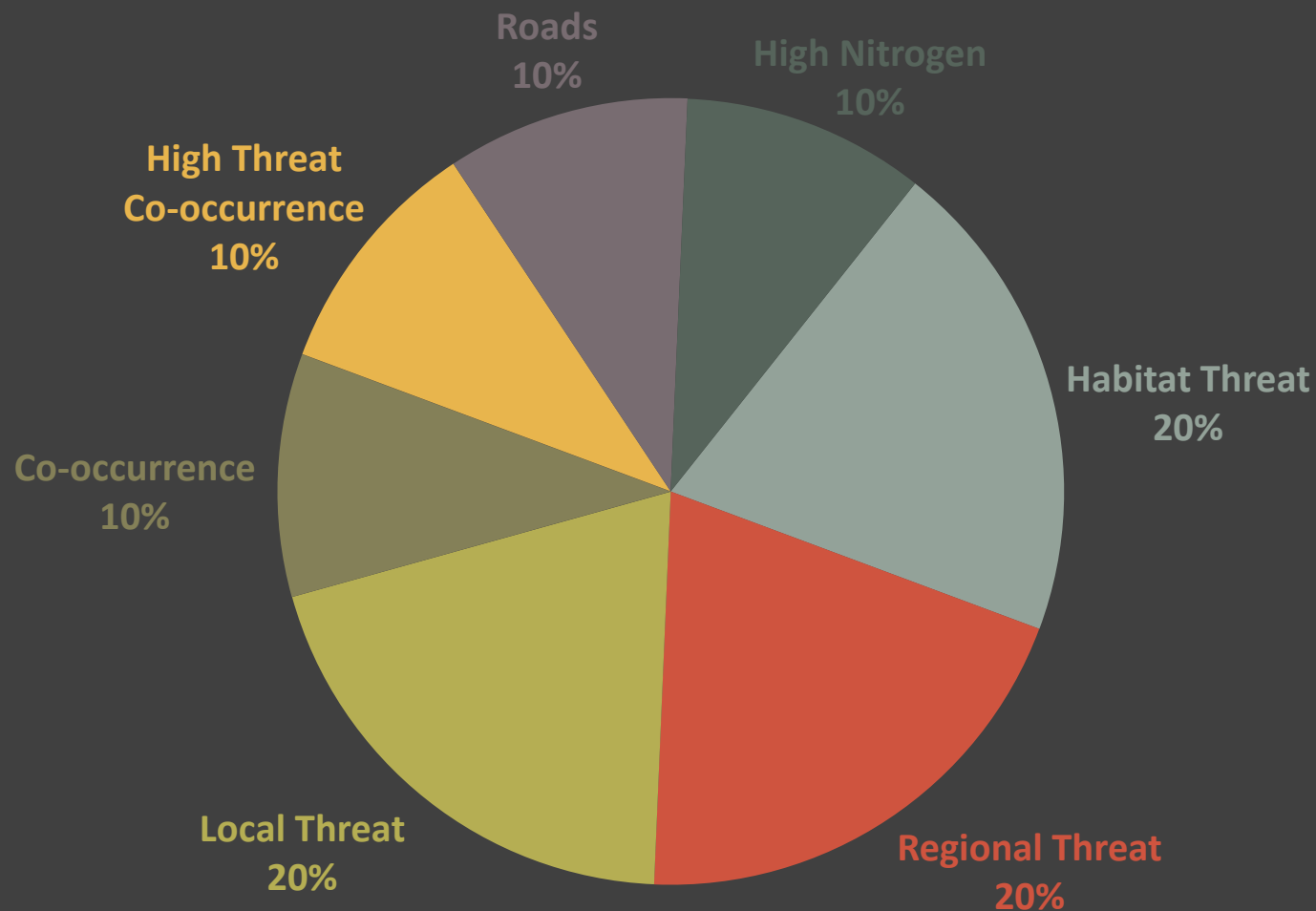
When Federally-listed rare plant populations occur in the hexagon, the local threat score for these populations was averaged.

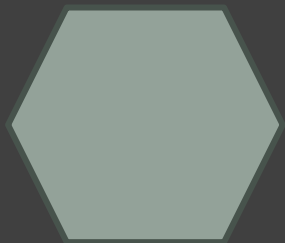
“Is this population threatened by invasive plants?”





Scoring Hexes for Invasive Plant Risk

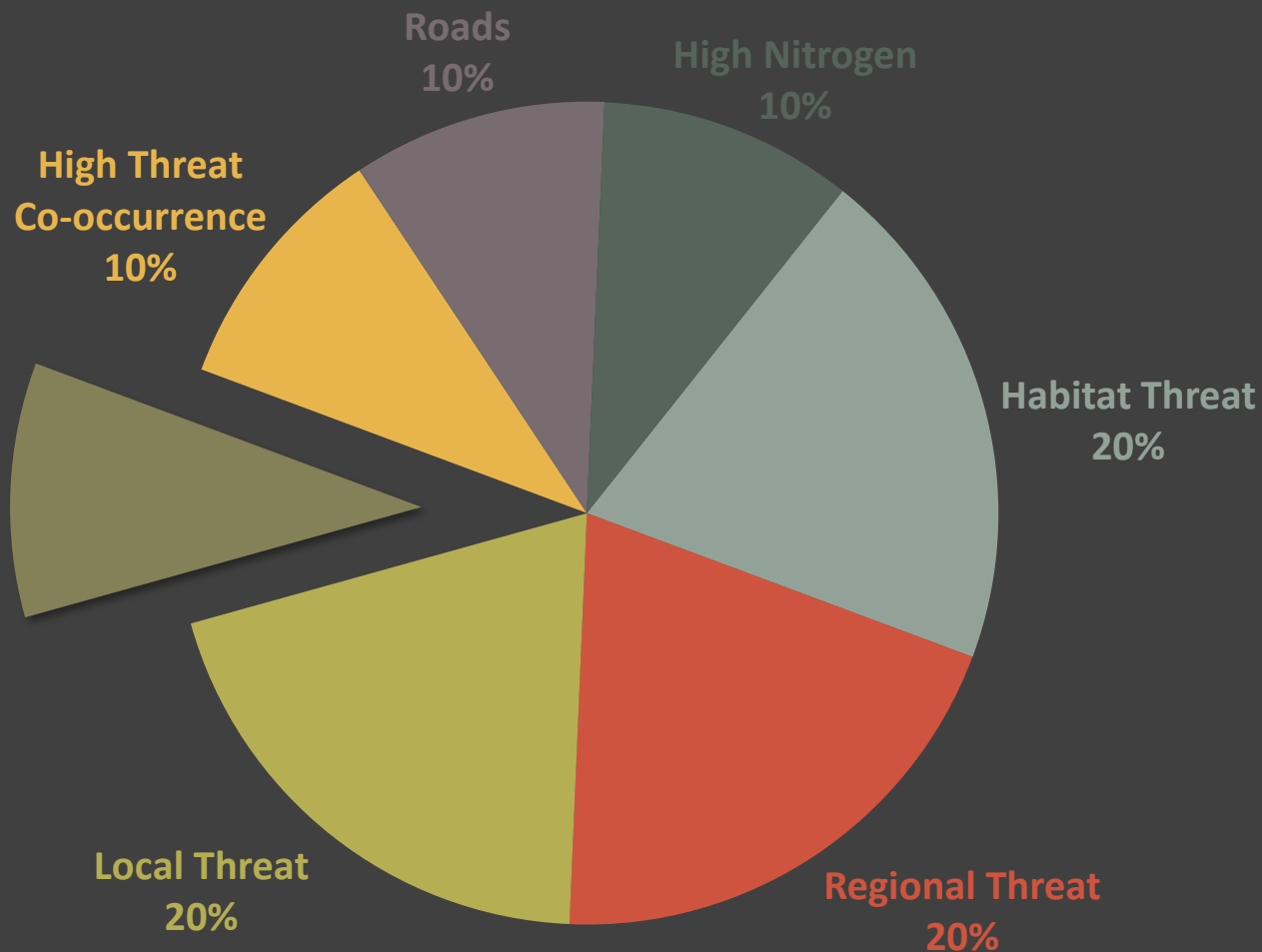


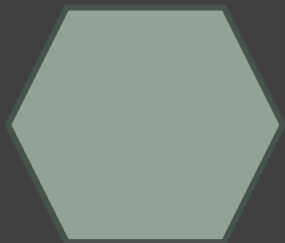


Scoring Hexes for Invasive Plant Risk

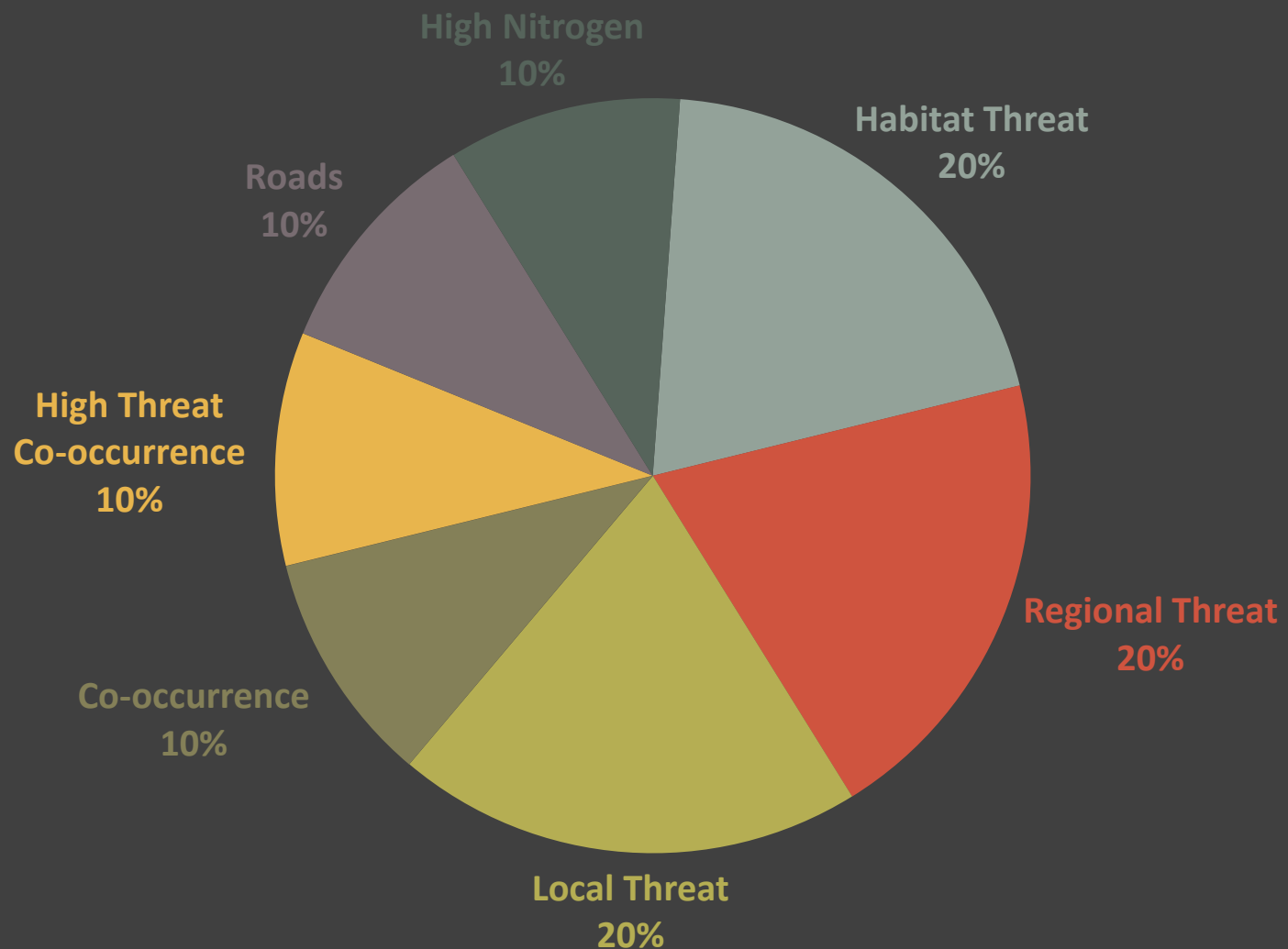
Co-occurrence 10%

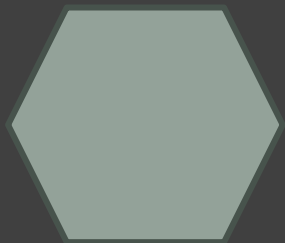
Do Cal-IPC listed species occur in this hexagon?





Scoring Hexes for Invasive Plant Risk

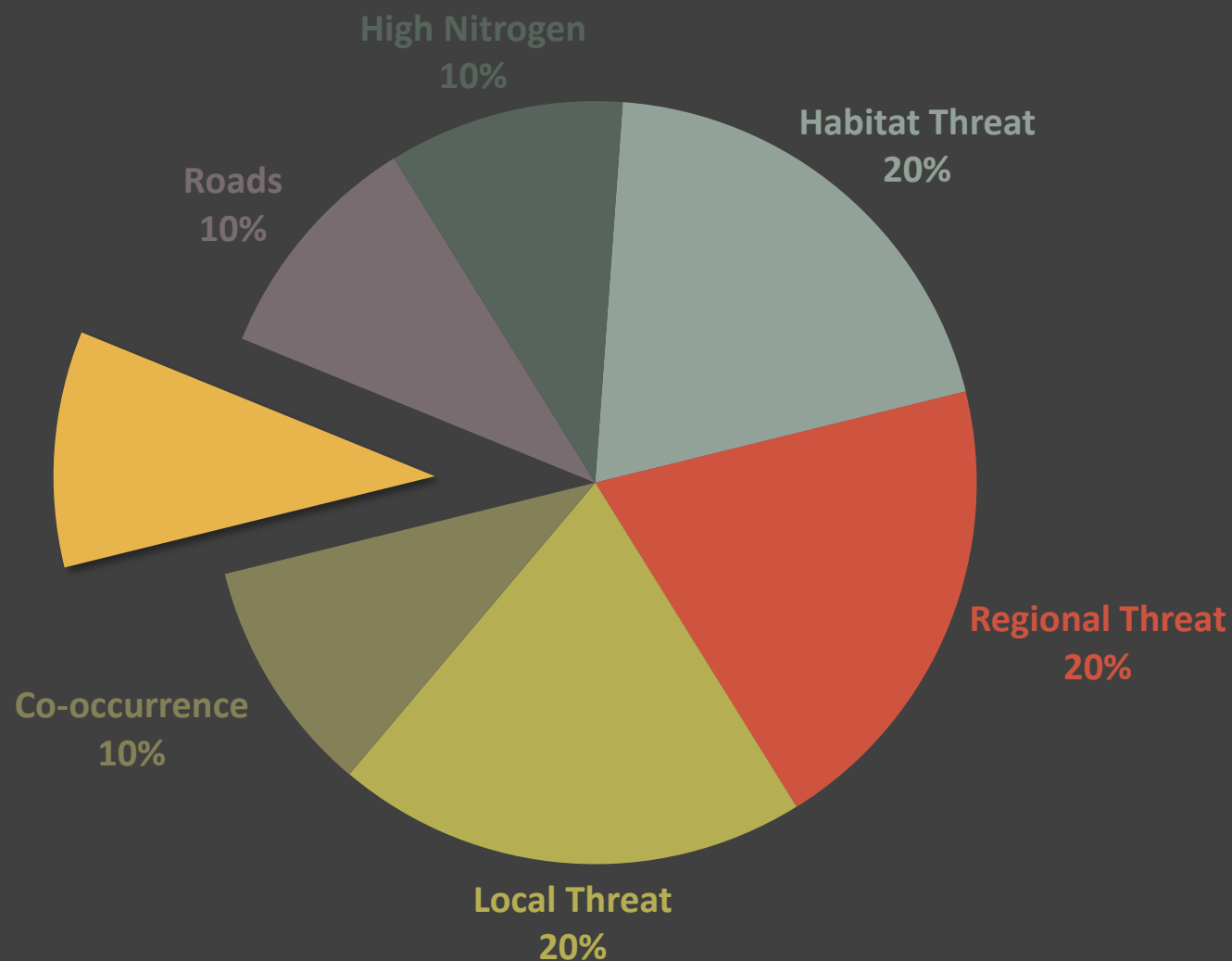


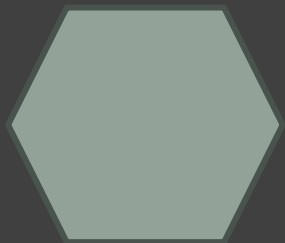


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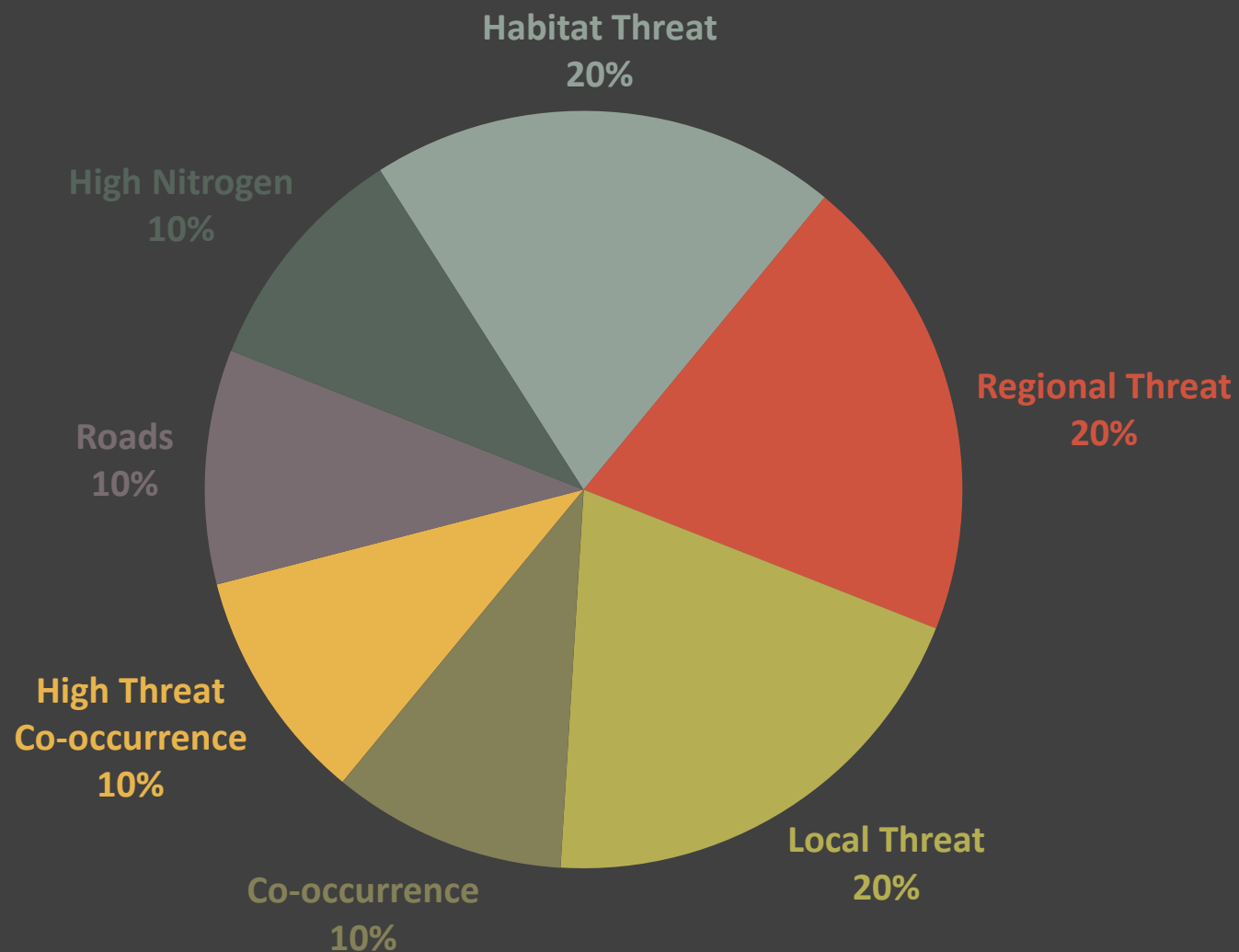
High Threat Co-occurrence 10%

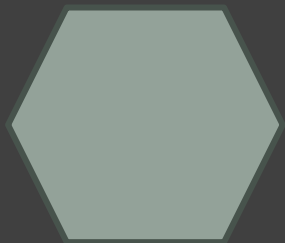
Do Cal-IPC listed species assessed with high ecological impacts occur in the hexagon?





Scoring Hexes for Invasive Plant Risk

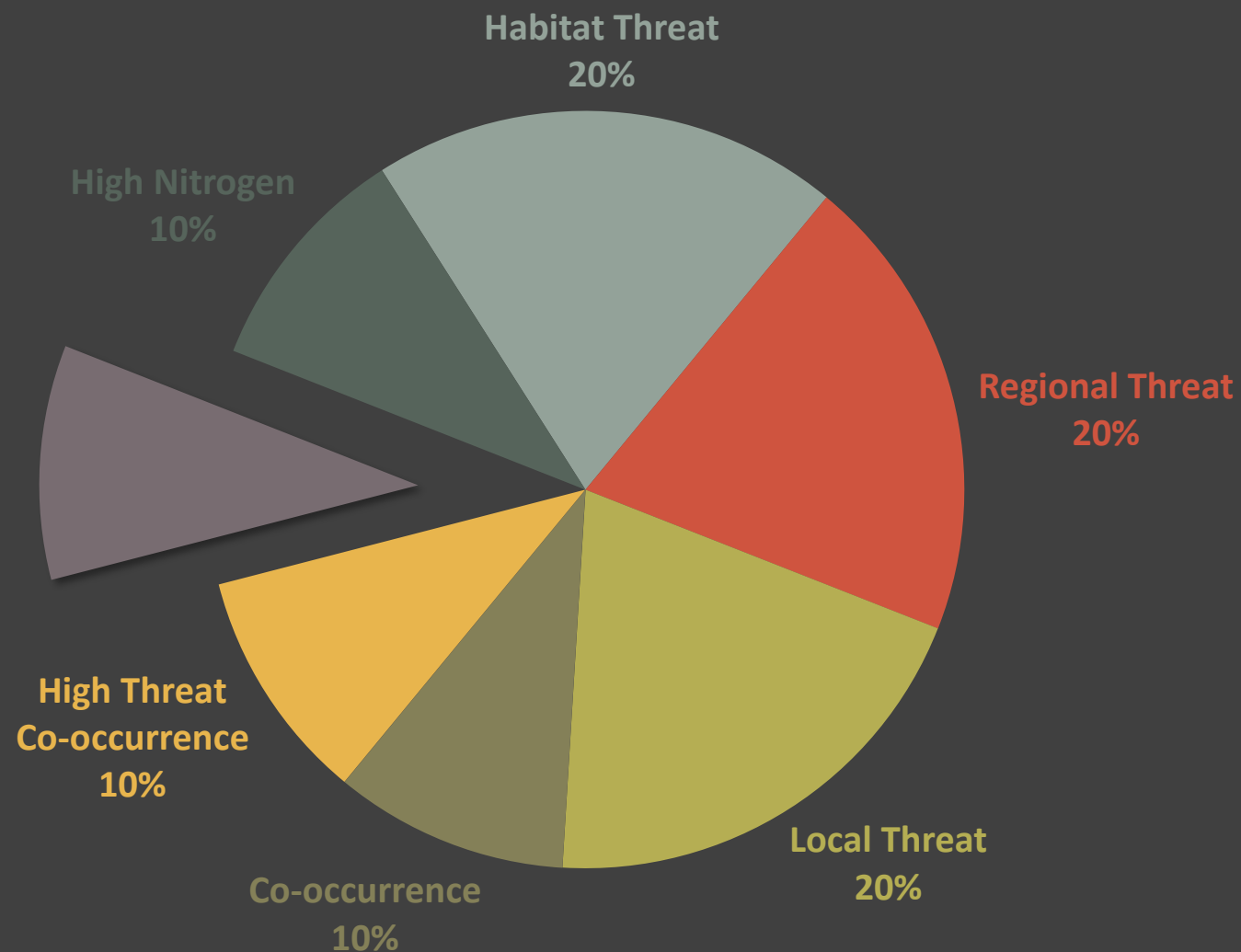


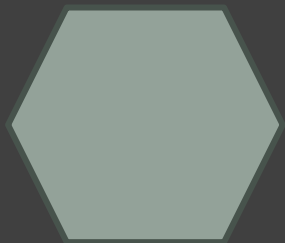


Scoring Hexes for Invasive Plant Risk

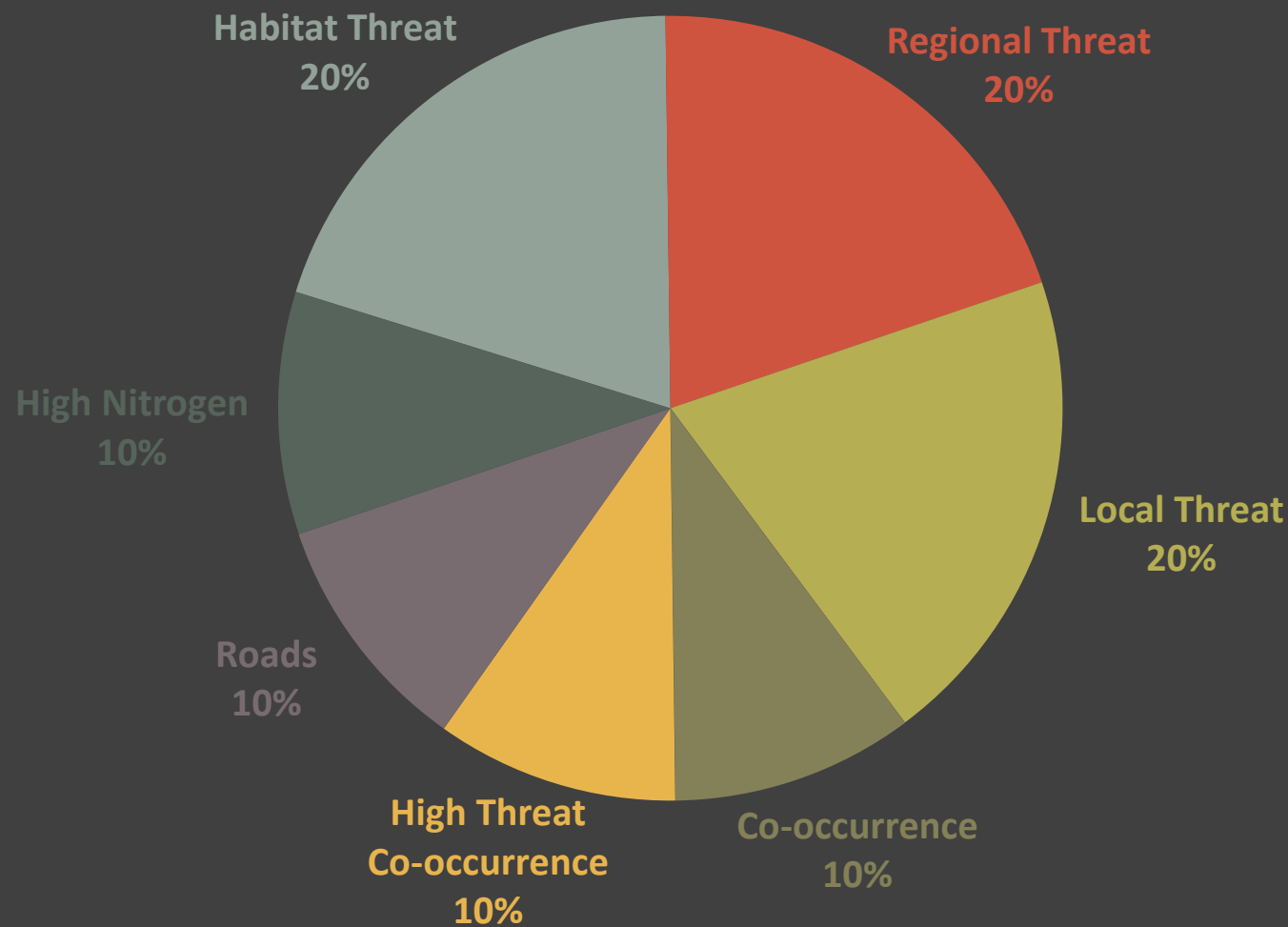
Roadside Adjacency 10%

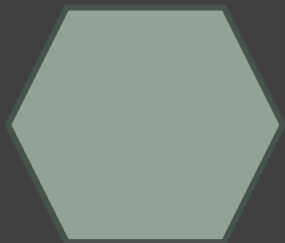
Classified the area of roads in each hexagon.





Scoring Hexes for Invasive Plant Risk

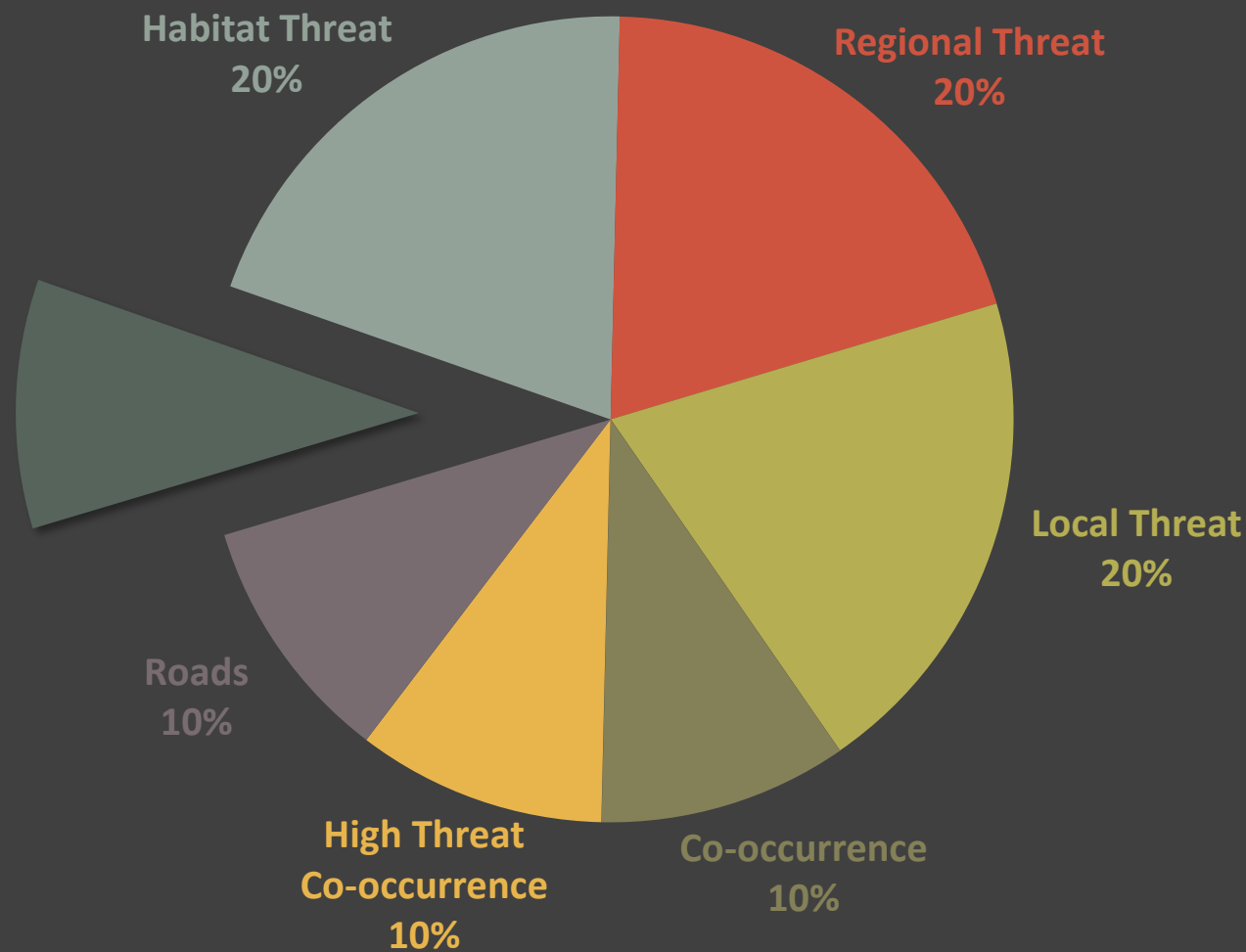


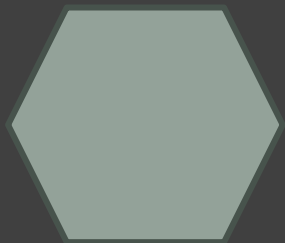


Scoring Hexes for Invasive Plant Risk

High Nitrogen 10%

Classified the average total nitrogen in the hexagon.

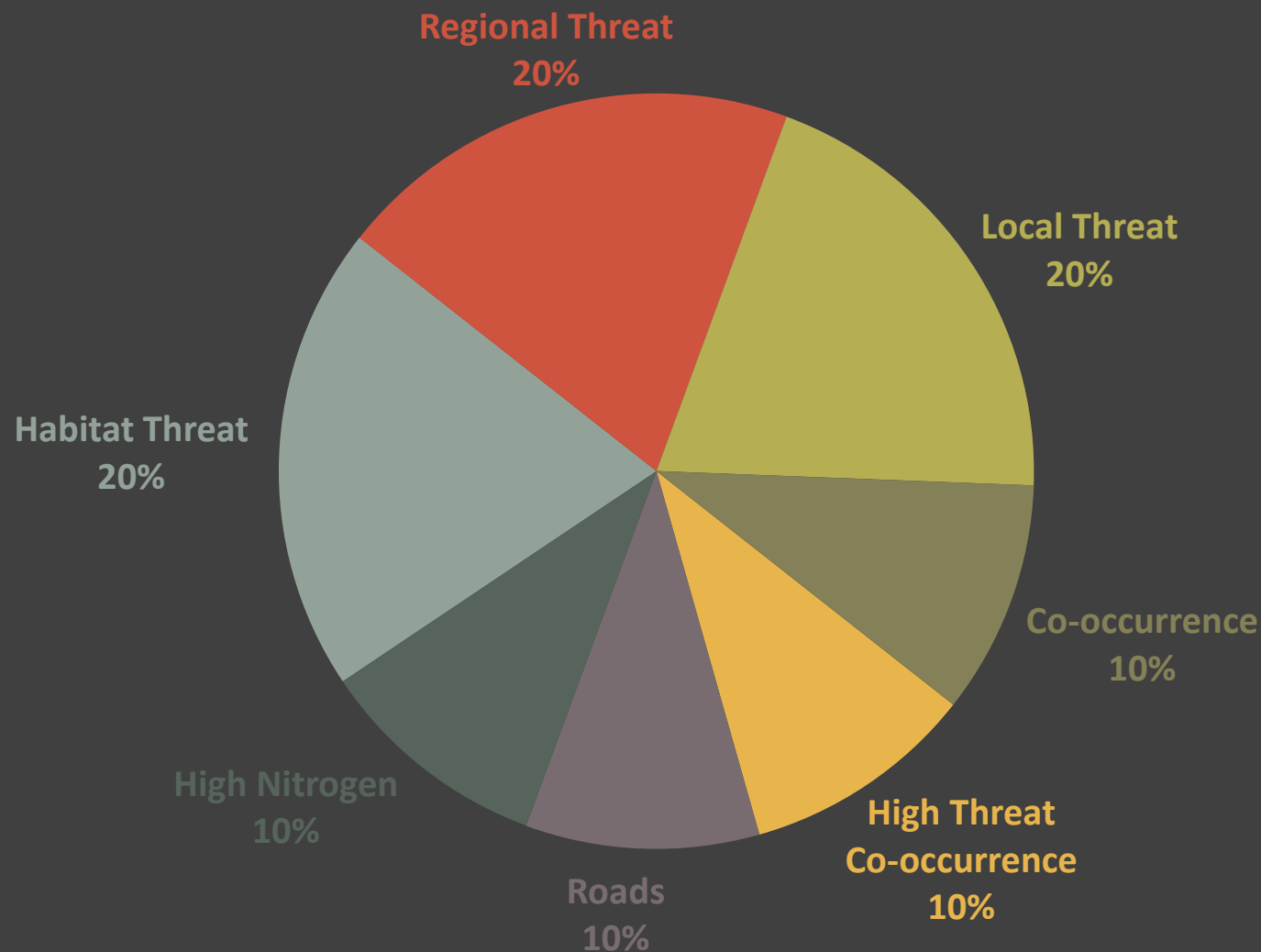




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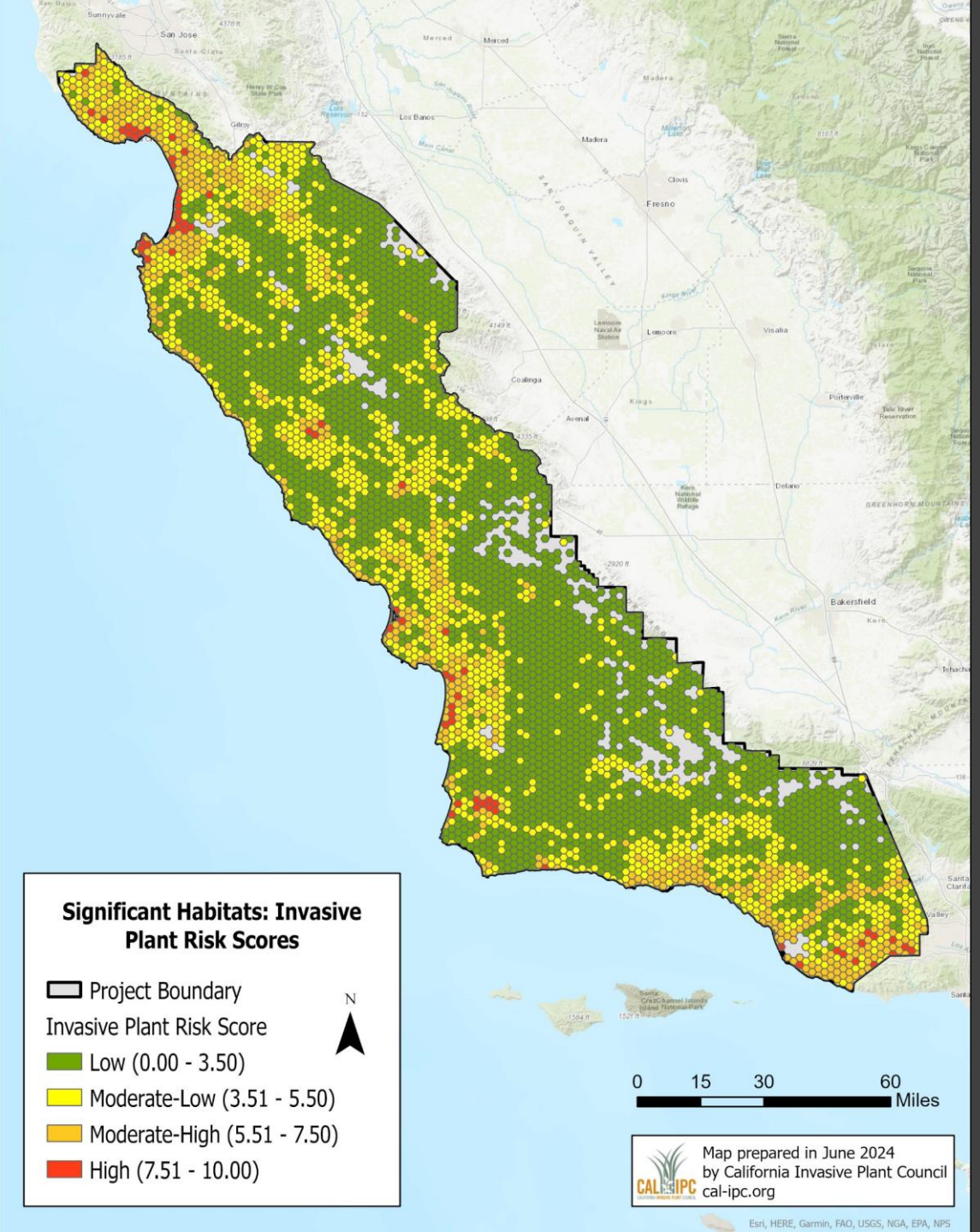


Invasive Plant Risk Scores

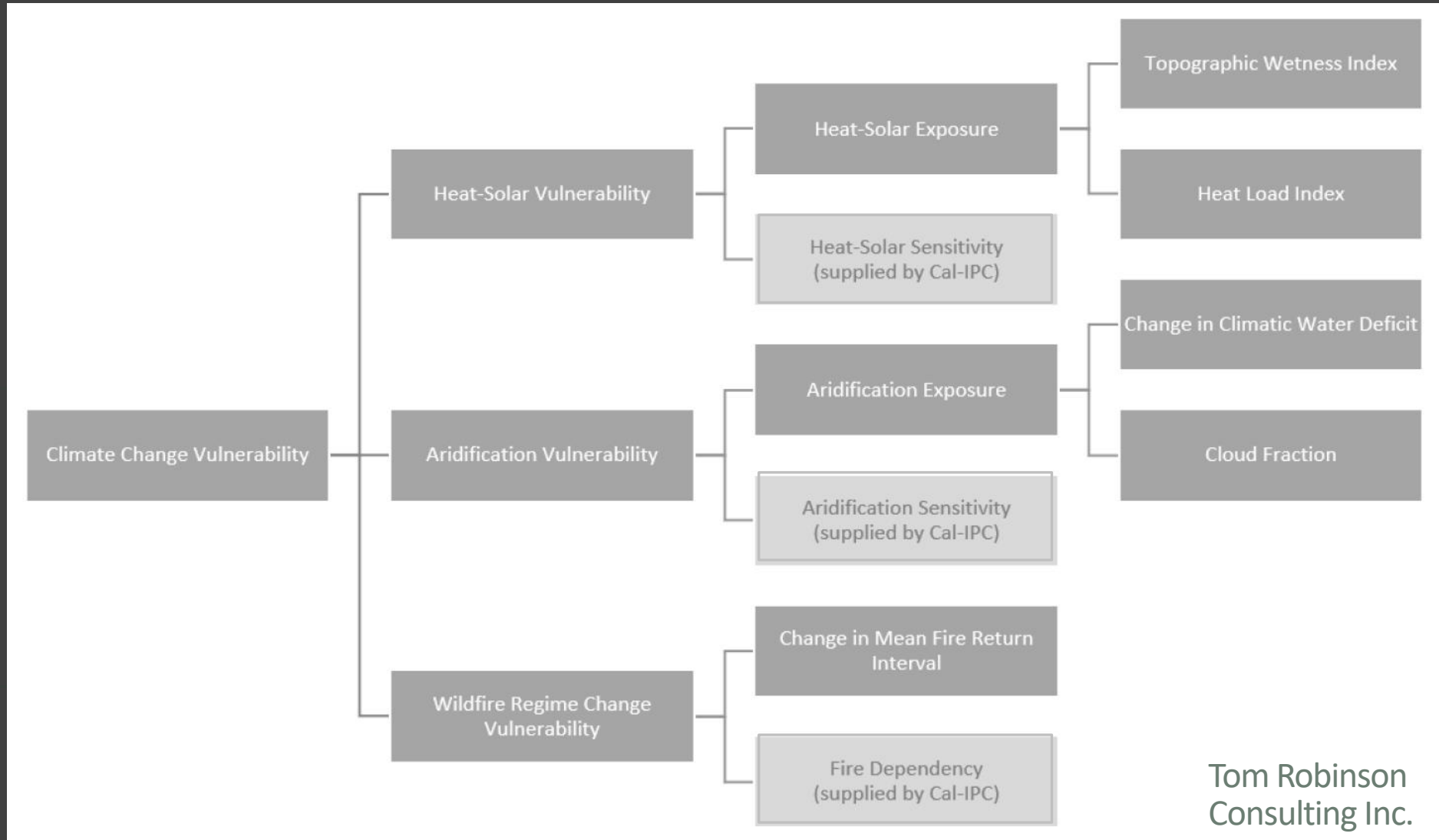
Reflect the Invasive Plant Scores created for rare plant populations:

- Areas with high-scoring rare plant populations tended to have higher scores.
- San Benito evening primrose (*Camissonia benitensis*) populations with low scores occur in low-scoring hexagons.

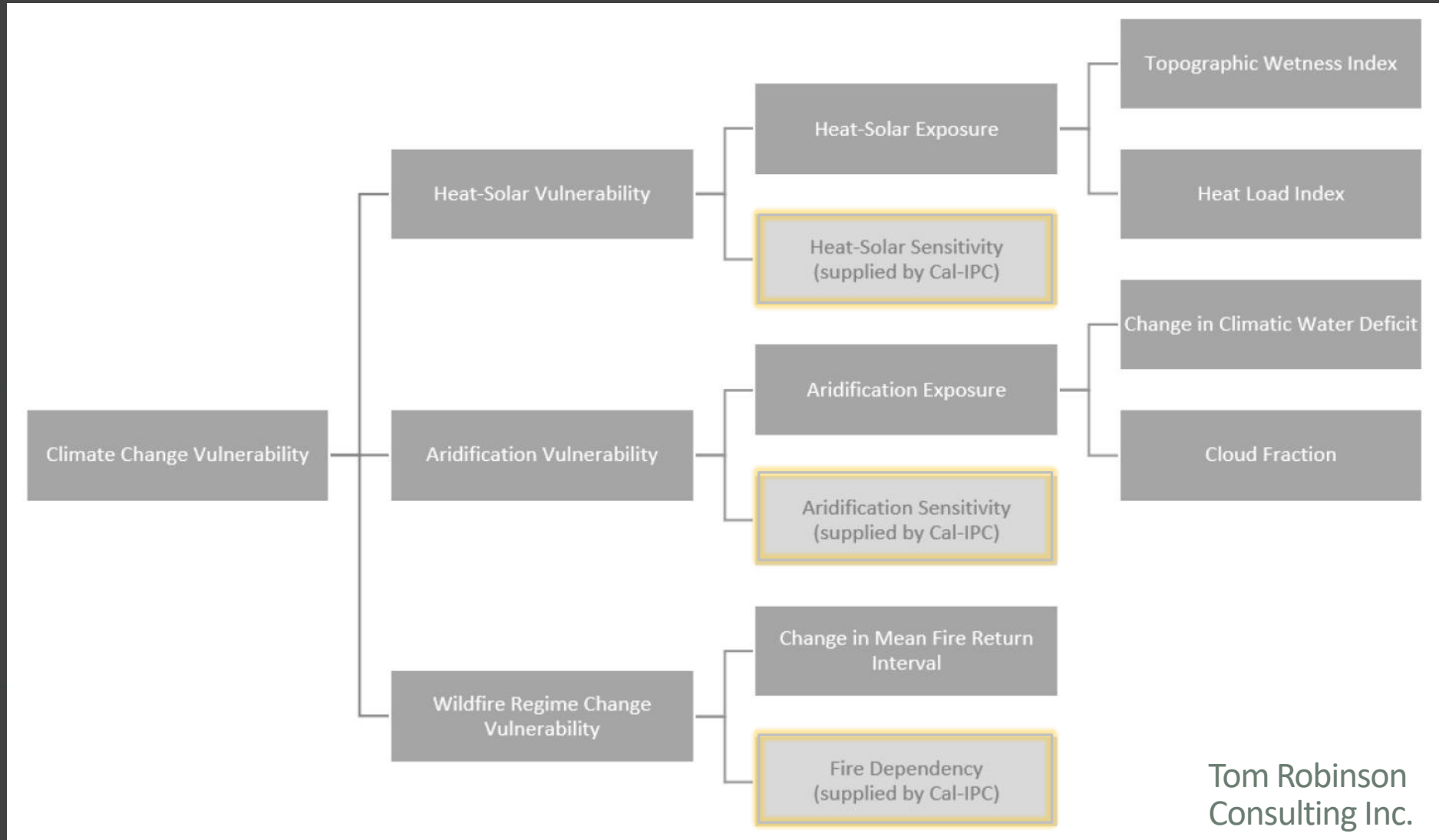
Coastal areas tended to score higher.



Scoring Climate Change Vulnerability Scores

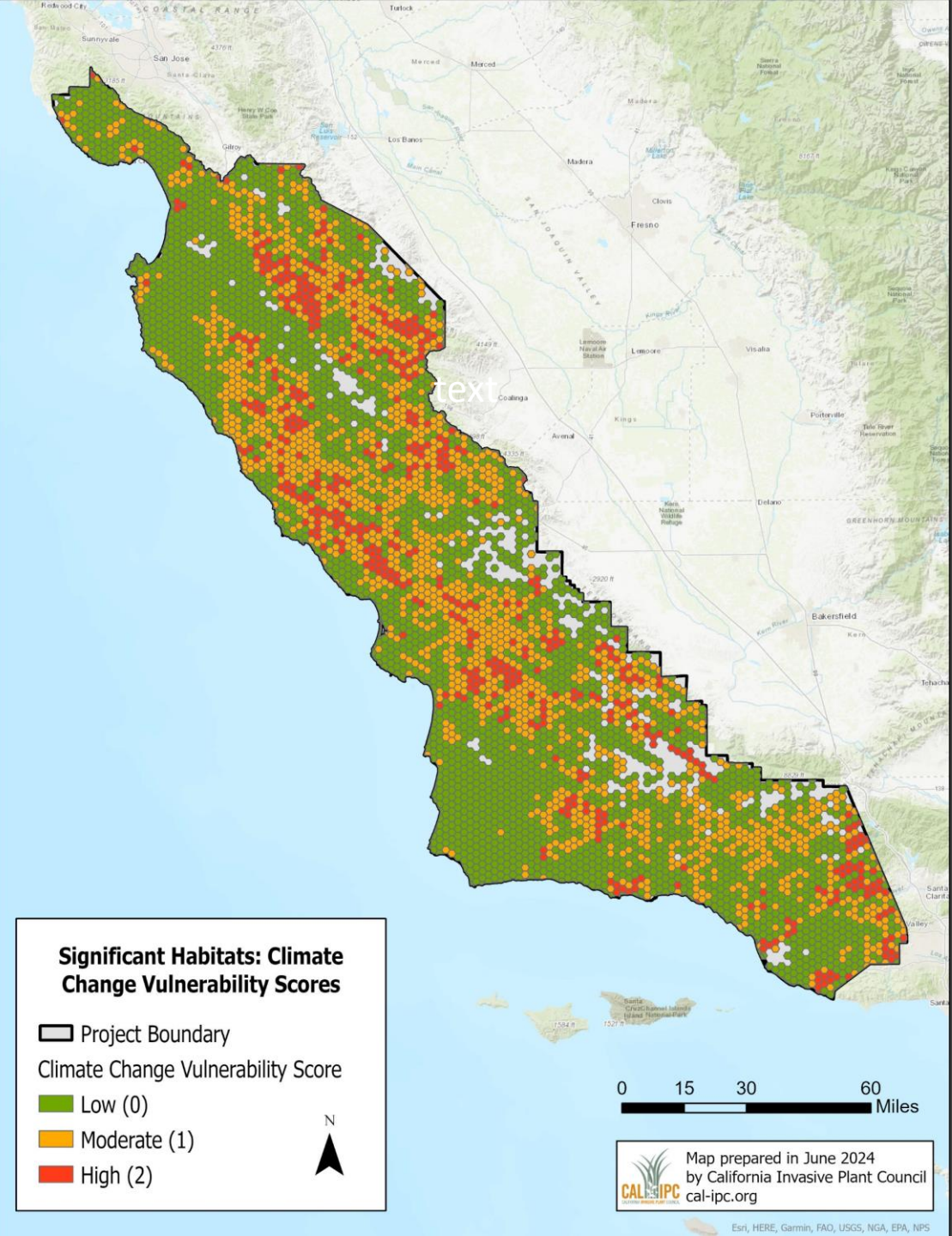


Scoring Climate Change Vulnerability Scores



Climate Change Vulnerability Scores

- Coastal Areas tended to score lower
- Accounts for up to two points in the **Combined Invasive Plant Risk and Climate Vulnerability Score**



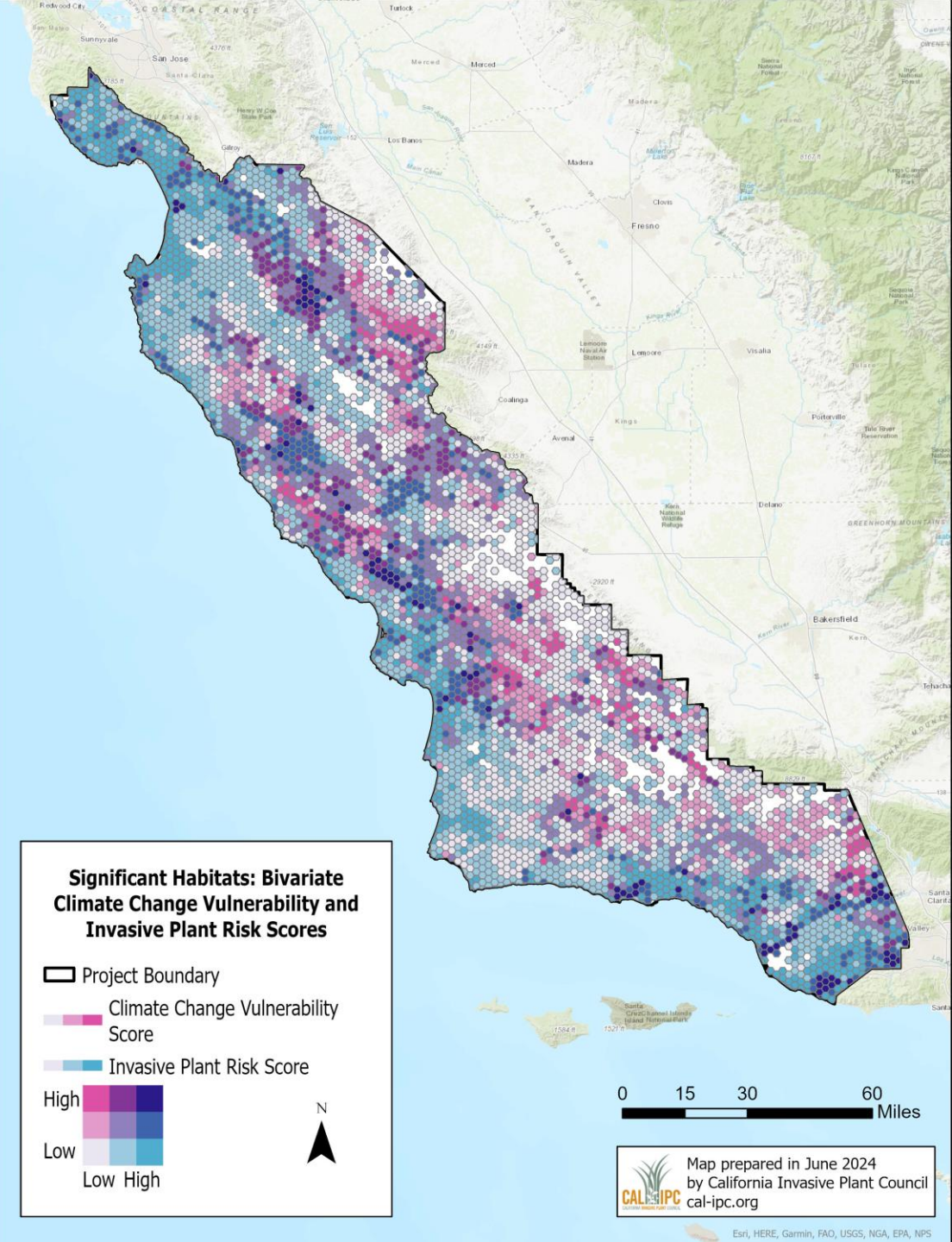
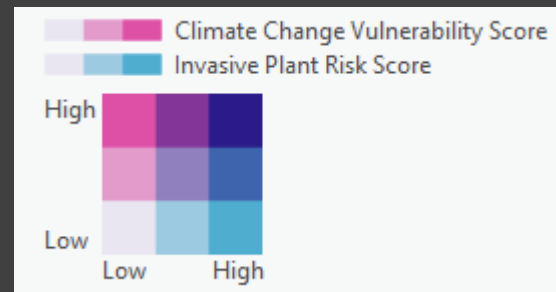
Bivariate Climate Change Vulnerability and Invasive Plant Risk Scores

Low Invasive Plant Risk Score

- San Benito evening primrose

Low Climate Risk Vulnerability Score

- Point Arguello



Invasive Plant Risk and Climate Change Vulnerability Scores

Hot Spots:

- Santa Cruz and Capitola
- Monterey, Pacific Grove, and Carmel-by-the-sea
- Fort Hunter Liggett
- Morro Bay
- Mission Hills
- Goleta
- Simi Hills



Sensitive Habitats: Highest Average Scores

- ❖ Most of the highest scoring habitat types are riparian.
- ❖ *Salix laevigata* (Red willow) requires more water than other willows. *Salix laevigata* occurs in two of the five habitats with the highest Climate Change Vulnerability scores.

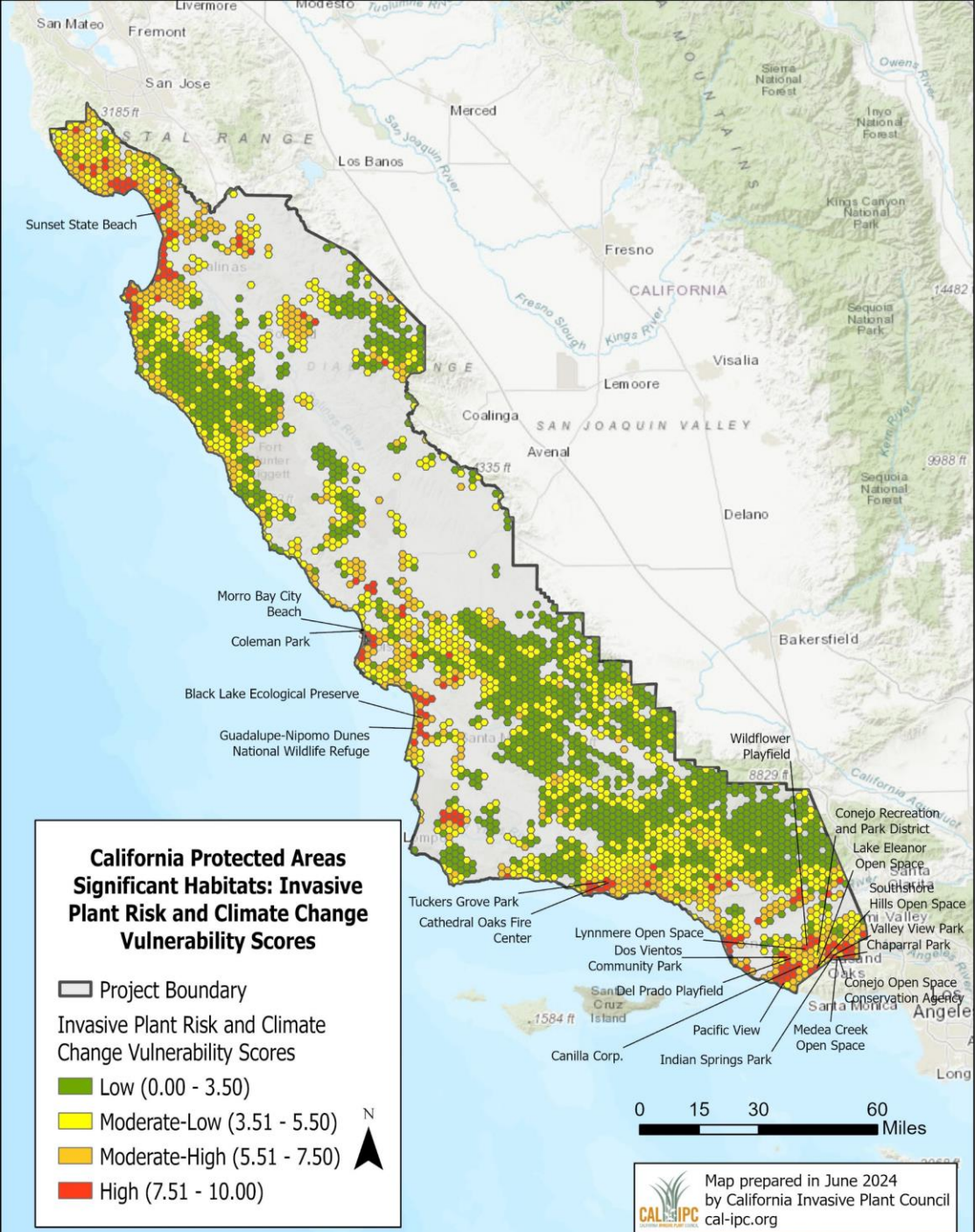
Habitat Type	No. of Occurrences	Average IPRS + CCV Score
<i>Encelia californica</i>	1	8.50
<i>Eriogonum heermannii</i>	1	8.50
<i>Platanus racemosa</i> – <i>Populus fremontii</i>	1	8.50
<i>Platanus racemosa</i> – <i>Quercus agrifolia</i>	1	8.50
<i>Platanus racemosa</i> – <i>Salix laevigata</i>	1	8.50
<i>Populus fremontii</i> – <i>Sambucus nigra</i>	1	8.50
<i>Lepidospartum squamatum</i> – <i>Baccharis salicifolia</i>	4	8.25
<i>Leymus condensatus</i>	3	8.17
<i>Salix laevigata</i> – <i>Salix lasiolepis</i>	11	8.14
<i>Sarcocornia pacifica</i> (<i>Salicornia depressa</i>)	1	8.00
Northern Bishop Pine Forest	3	7.98
<i>Populus trichocarpa</i> – <i>Salix laevigata</i>	8	7.94

IPRS = Invasive Plant Risk Score

CCV = Climate Change Vulnerability

California Protected Areas: Highest Average Scores

Unit Name	Agency Name
Canilla Corp.	United States National Park Service
Cathedral Oaks Fire Center	County of Santa Barbara
Chaparral Park	Rancho Simi Recreation and Park District
Coleman Park	City of Morro Bay
Conejo Open Space Conservation Agency	Conejo Open Space Conservation Agency
Conejo Recreation and Park District	Conejo Recreation and Park District
Del Prado Playfield	Conejo Recreation and Park District
Dos Vientos Community Park	Conejo Recreation and Park District
Indian Springs Park	Rancho Simi Recreation and Park District
Lake Eleanor Open Space	Conejo Open Space Conservation Agency
Lynnmere Open Space	Conejo Open Space Conservation Agency
Medea Creek Open Space	City of Agoura Hills
Morro Bay City Beach	City of Morro Bay
Pacific View	United States National Park Service
Southshore Hills Open Space	Conejo Open Space Conservation Agency
Sunset State Beach	County of Santa Cruz
	Santa Barbara Flood Control and Water Conserv. District
Tuckers Grove Park	
Valley View Park	Rancho Simi Recreation and Park District
Wildflower Playfield	Conejo Recreation and Park District



Guadalupe-Nipomo Dunes Wildlife Refuge

Sensitive habitat types:

- Central Dune Scrub
- Central Foredunes
- Fresh Emergent Wetland
- Valley Foothill Riparian
- Freshwater Forested Shrub/Wetland
- Coastal Oak Woodland

Guadalupe-Nipomo Dunes Wildlife Refuge Significant Habitats: Invasive Plant Risk and Climate Change Vulnerability Scores

Refuge Boundary

Invasive Plant Risk and Climate
Change Vulnerability Scores

Low (0.00 - 3.50)

Moderate-Low (3.51 - 5.50)

Moderate-High (5.51 - 7.50)

High (7.51 - 10.00)

0 0.28 0.55 1.1 Miles



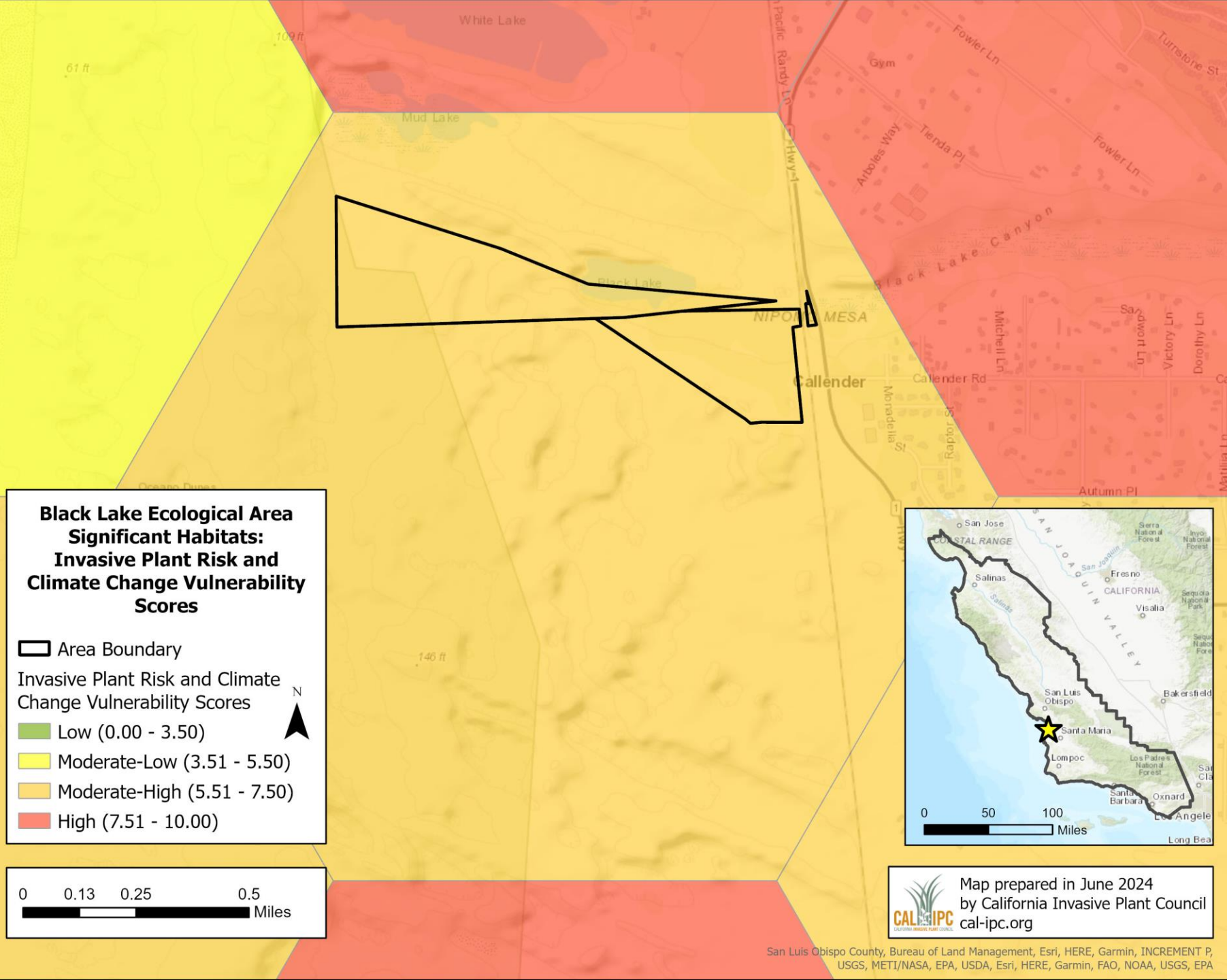
Map prepared in June 2024
by California Invasive Plant Council
cal-ipc.org

San Luis Obispo County, Bureau of Land Management, Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA, NOAA, EPA, USDA, Esri, HERE, Garmin, FAO, NOAA, USGS, EPA, NPS

Black Lake Ecological Area

Rare Plants:

- Nipomo lupine (*Lupinus nipomensis*)



Conclusions

- ❖ We have identified habitats and areas to focus conservation efforts for invasive plant management on the central coast.
- ❖ Management actions controlling invasive plants near high-risk sensitive habitats are recommended.
- ❖ There should be standardized data entry for invasive plants co-occurring with rare plants and sensitive habitats.

See the [full report here](#)



Thank you

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