

Alien Plant Species Inventory and Mapping

for Sequoia-Kings Canyon and
Yosemite National Parks

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Alien species control

- ❖ St. Johns Wort
- ❖ Spotted knapweed
- ❖ Perennial pepperweed
- ❖ Bull thistle
- ❖ Himalayan blackberry

Targeted areas

- ❖ Restoration areas
- ❖ Construction areas
- ❖ Meadows, sequoia groves



Bull thistle in Yosemite Valley



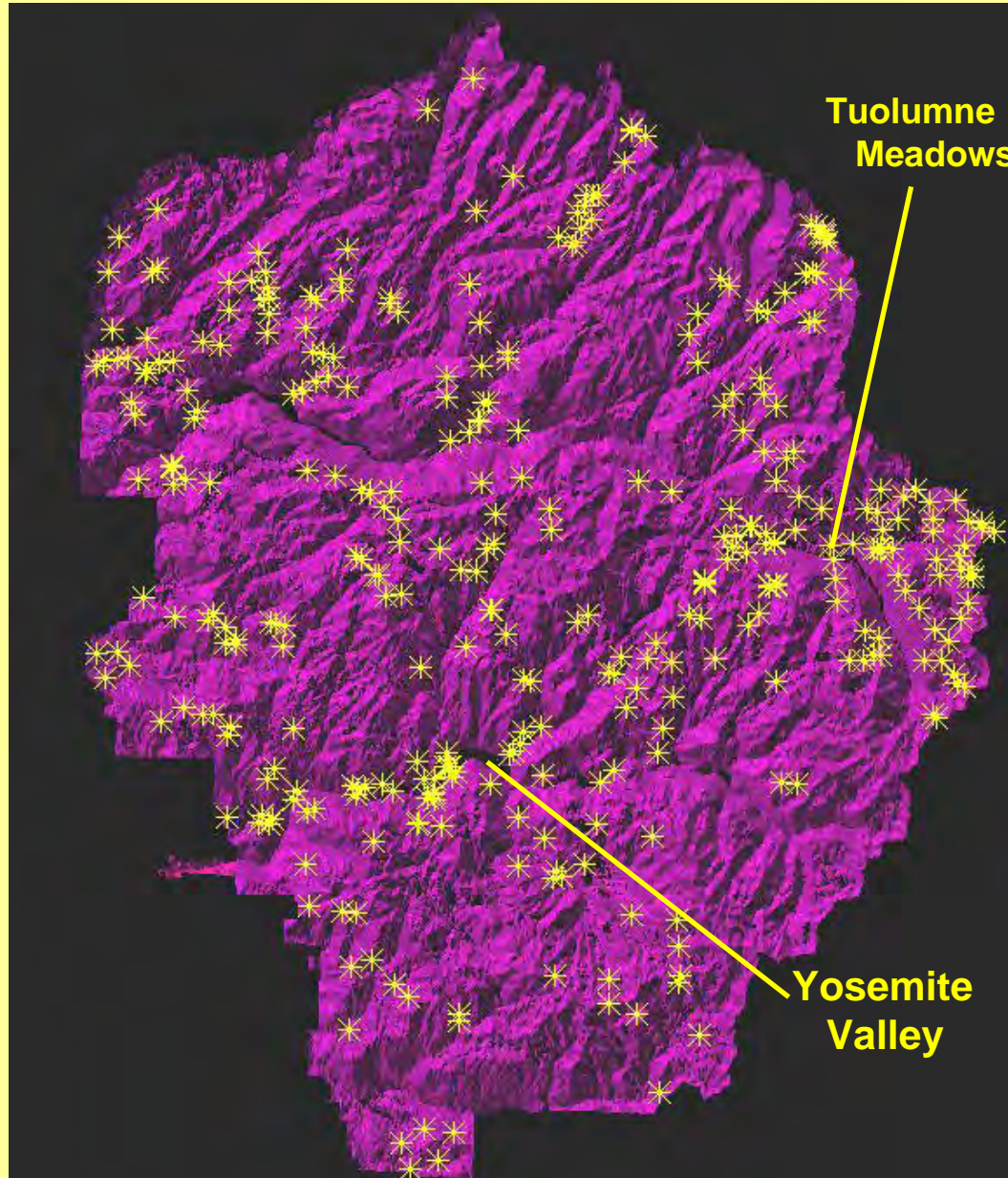


Existing survey data



Plant inventory plot, Leidig Meadow, Yosemite Valley

Distribution of inventory plots in Yosemite NP



Tuolumne Meadows

Yosemite Valley

Objectives

- ❖ **Inventory non-native species in the park**
- ❖ **Assess alien plant distribution/abundance**
- ❖ **Map alien plant occurrence**
- ❖ **Summarize available information on each species**
- ❖ **Rank the species according to management priority**



Methods

- ❖ Identified likely areas of establishment
- ❖ Performed directed surveys
- ❖ Made complete lists of exotics by site
- ❖ Described site characteristics
- ❖ Inventoried roads and trails by 1 km segments



Areas Targeted for Surveys



- ❖ **Campgrounds**
- ❖ **Developments**
- ❖ **Stock holding areas**
- ❖ **Roads**
- ❖ **Trails**

Surveys

- ❖ Complete inventories of non-native species
- ❖ Surveys limited to affected areas (e.g., campground footprint, stock holding area)
- ❖ Abundance recorded on a log scale
- ❖ Trails: 3 km from trailhead
- ❖ Roads: 1 km segments



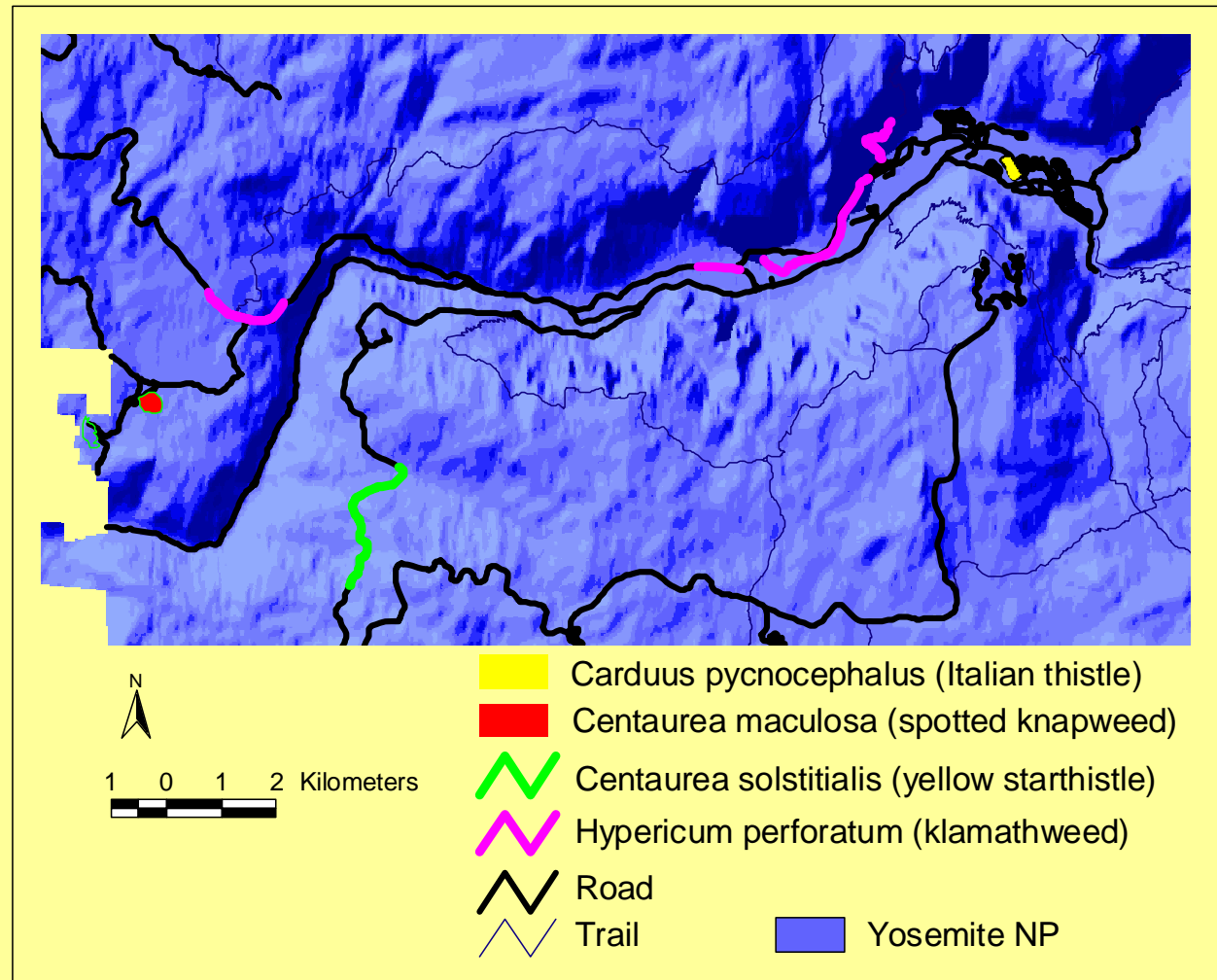
Areas Surveyed

Type of area	Yosemite	Sequoia-Kings Canyon
Campground	14	14
Development	19	10
Corral/Stable	9	5
Road	25	8
Trail	28	26
Other	5	17
Total	95	80



Mapping Standards

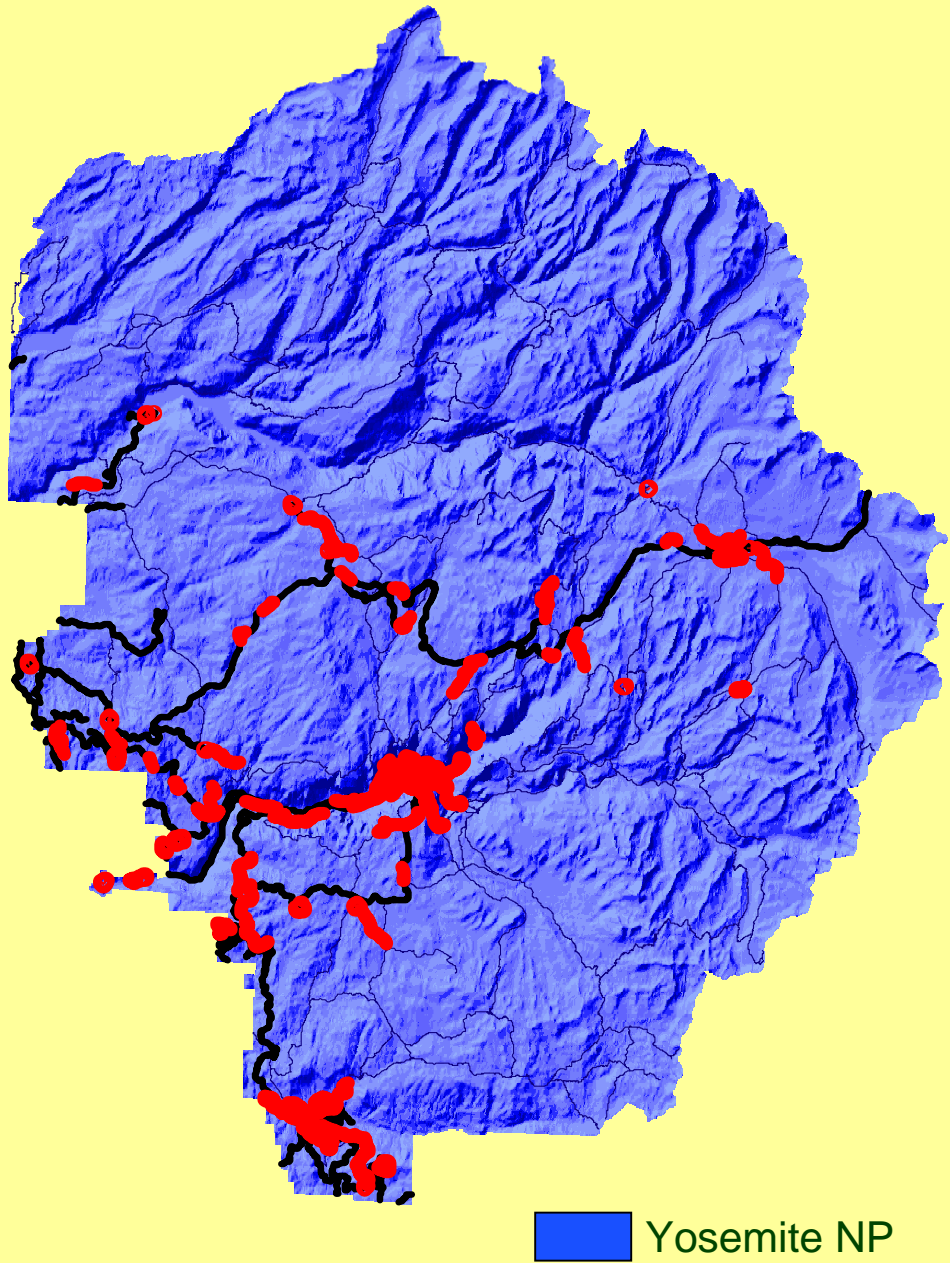
- ❖ Datum: NAD 1927
- ❖ Projection: UTM 11S
- ❖ Spatial data: vector
- ❖ Locational accuracy: meters



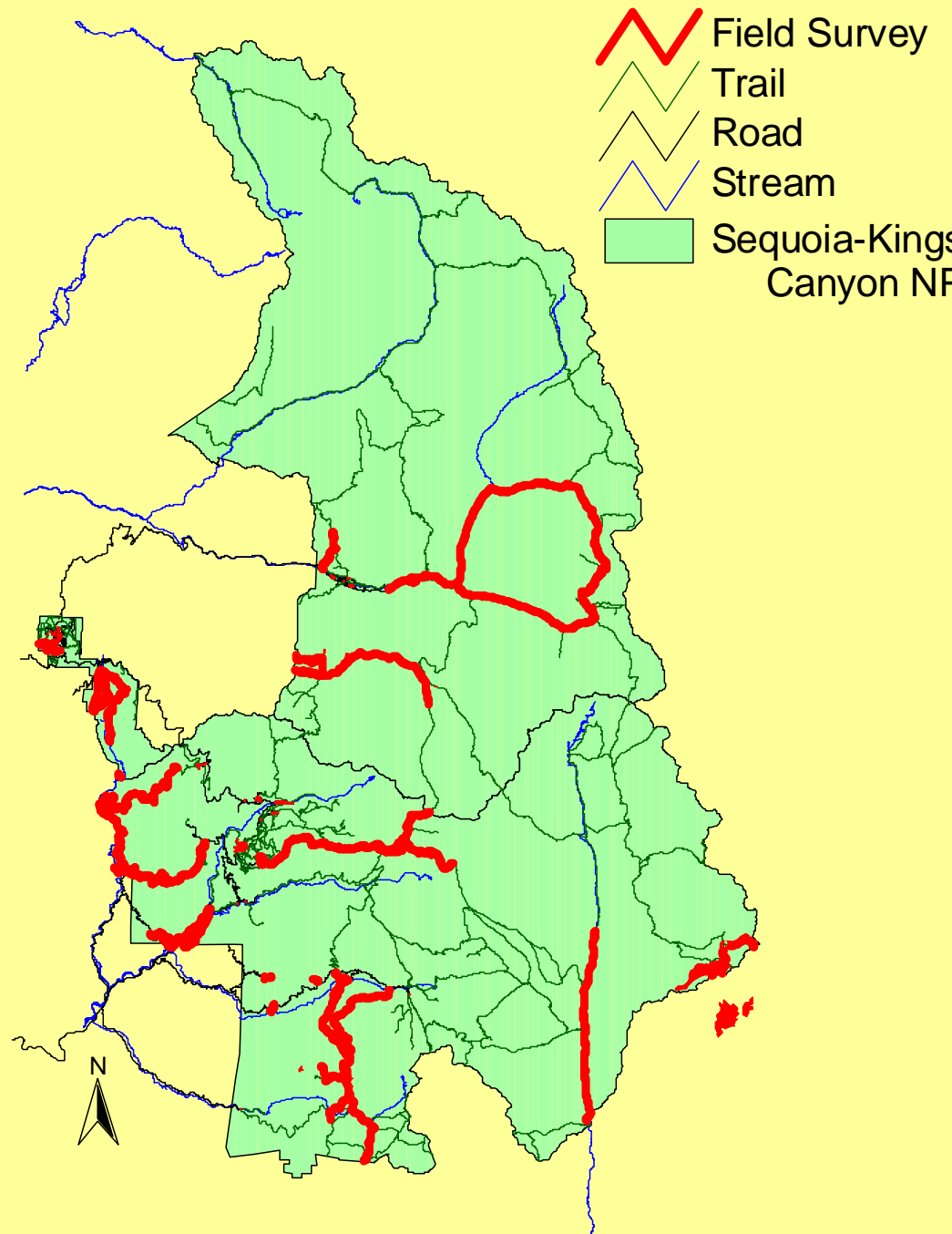
Data Standards

- ❖ Site name, date, observer(s)
- ❖ Complete non-native species list (Hickman)
- ❖ Abundance scale
- ❖ Vegetation type
- ❖ Vegetation structure
- ❖ All species vouchered





Yosemite NP



- Field Survey
- Trail
- Road
- Stream
- Sequoia-Kings Canyon NP

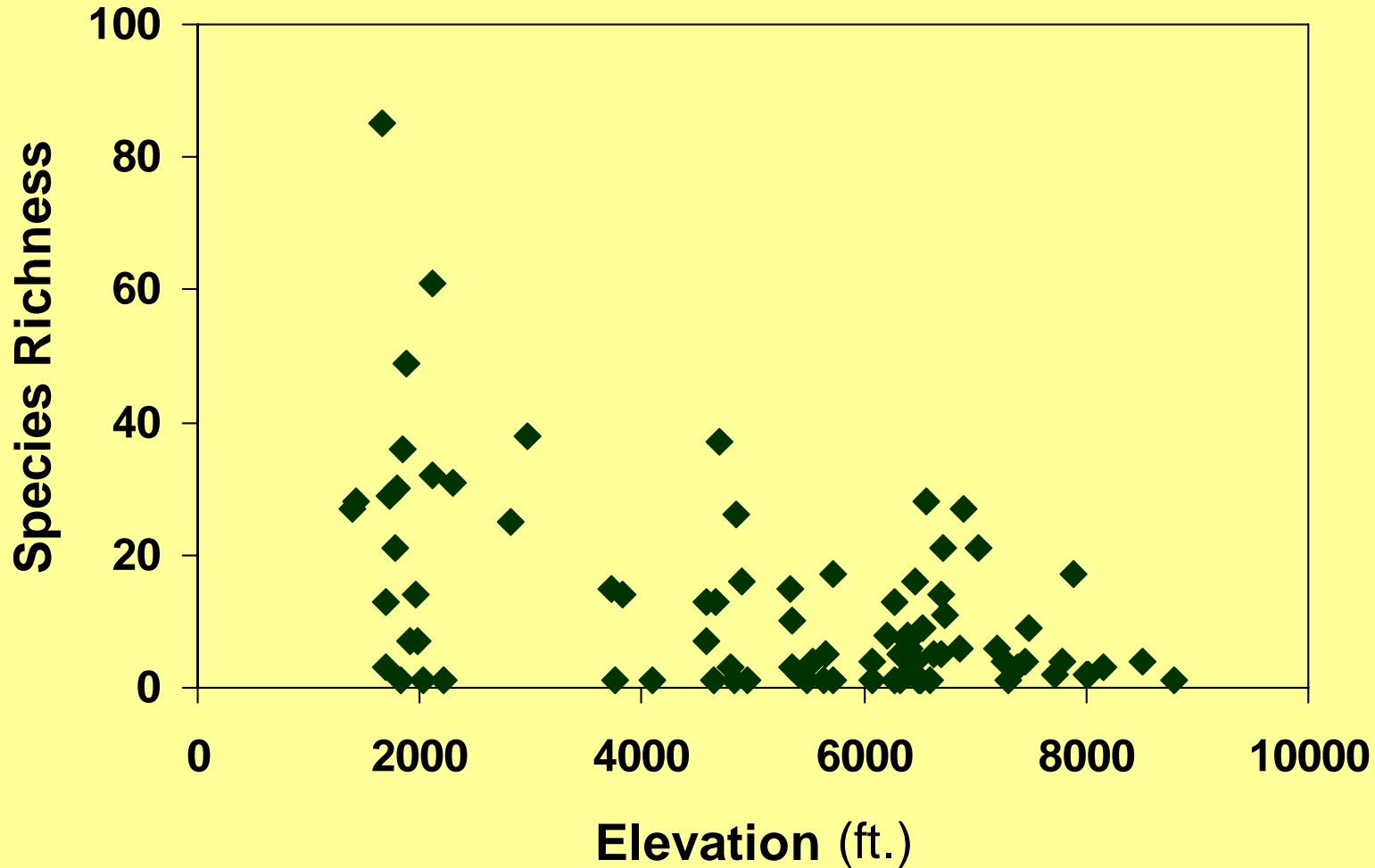
Alien species in surveys

	Yosemite	Sequoia/Kings Canyon
Total alien Species	129	179
“Most Invasive” ¹	18	19
“Lesser Invasive” ¹	24	24
“Red Alert” ¹	0	0
“Significant Threat” ¹	4	4

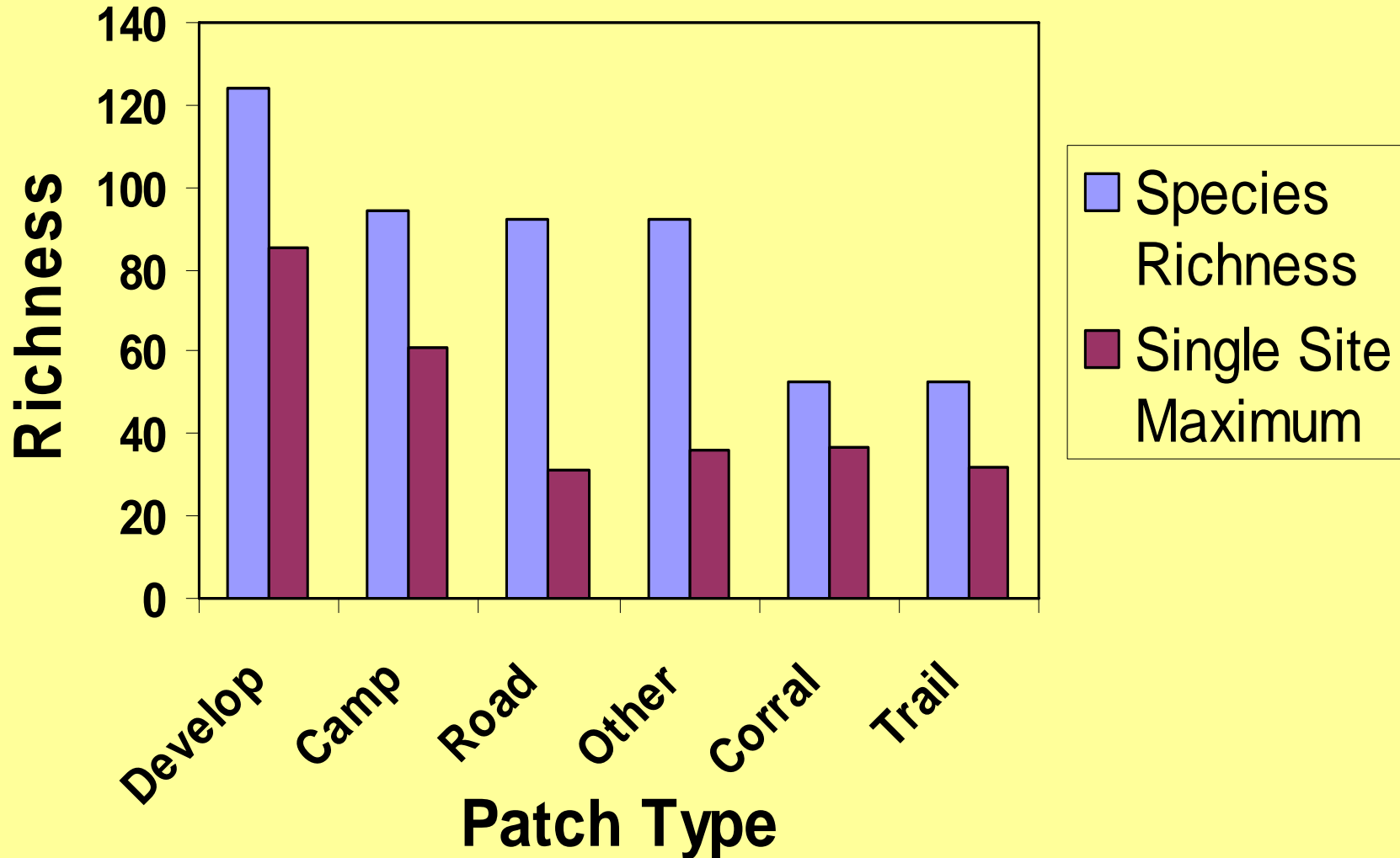
¹California & Pacific Northwest Exotic Pest Plant Councils, 1999

Alien Species Richness by Elevation

All sites in Sequoia and Kings Canyon NP



Alien Species Richness by Survey Type



Tools for Managers

- ❖ Alien plant distributions in the 3 parks within disturbed areas
- ❖ Summary of published biology, ecology and controllability information for each species
- ❖ GIS themes store
 - ❖ Species occurrence by site
 - ❖ Sites where particular species occurred



Past and Current Yosemite Mapping Efforts

- ❖ Himalayan blackberry (monitoring control effectiveness)
- ❖ Yellow star-thistle (monitoring control effectiveness)
- ❖ Post-fire infestations

