

Appendix 1 – Species List

Study species with ratings from Cal-IPC (Cal-IPC 2006) and the California Department of Food and Agriculture (CDFA 2010). Some closely-related species were combined for the purposes of this project when identification is difficult and they grow in the same habitats.

SPECIES	SCIENTIFIC NAME	CAL-IPC	CDFA
FAMILY APIACEAE			
Poison-hemlock	<i>Conium maculatum</i>	Moderate	
FAMILY ASTERACEAE			
Russian knapweed	<i>Acroptilon repens</i>	Moderate	B
Musk thistle	<i>Carduus nutans</i>	Moderate	A
Italian thistle & slenderflower thistle	<i>Carduus pycnocephalus</i> & <i>C. tenuiflorus</i>	Moderate Limited	C C
Woolly distaff thistle	<i>Carthamus lanatus</i>	Moderate-Alert	B
Diffuse knapweed	<i>Centaurea diffusa</i>	Moderate	A
Spotted knapweed	<i>Centaurea maculosa</i>	High	A
Tocalote	<i>Centaurea melitensis</i>	Moderate	
Yellow starthistle	<i>Centaurea solstitialis</i>	High	C
Rush skeletonweed	<i>Chondrilla juncea</i>	Moderate	A
Canada thistle	<i>Cirsium arvense</i>	Moderate	B
Bull thistle	<i>Cirsium vulgare</i>	Moderate	C
Stinkwort	<i>Dittrichia graveolens</i>	Moderate	
Ox-eye daisy	<i>Leucanthemum vulgare</i>	Moderate	
Scotch thistle	<i>Onopordum acanthium</i>	High	A
FAMILY BORAGINACEAE			
Houndstongue	<i>Cynoglossum officinale</i>	Moderate	
Lens-podded white-top & hoary cress	<i>Cardaria chalepensis</i> & <i>C. draba</i>	Moderate-Alert Moderate	B B
FAMILY BRASSICACEAE			
Dyer's woad	<i>Isatis tinctoria</i>	Moderate	B
Charlock mustard	<i>Sinapis arvensis</i>	Limited	
FAMILY DIPSACACEAE			
Common teasel & fuller's teasel	<i>Dipsacus fullonum</i> & <i>D. sativus</i>	Moderate Moderate	

FAMILY FABACEAE			
Scotch broom	<i>Cytisus scoparius</i>	High	C
French broom	<i>Genista monspessulana</i>	High	C
Spanish broom	<i>Spartium junceum</i>	High	C
Black locust	<i>Robinia pseudoacacia</i>	Limited	
Red sesbania	<i>Sesbania punicea</i>	High	B
Gorse	<i>Ulex europaeus</i>	High	B
FAMILY POACEAE			
Giant reed	<i>Arundo donax</i>	High	B
Annual false-brome	<i>Brachypodium distachyon</i>	Moderate	
Japanese brome	<i>Bromus japonicus</i>	Limited	
Red brome	<i>Bromus madritensis</i> subsp. <i>rubens</i>	High	
Jubatagrass	<i>Cortaderia jubata</i>	High	B
Pampasgrass	<i>Cortaderia selloana</i>	High	
Orchardgrass	<i>Dactylis glomerata</i>	Limited	
Common velvet grass	<i>Holcus lanatus</i>	Moderate	
Mediterranean barley	<i>Hordeum marinum</i>	Moderate	
Hare barley	<i>Hordeum murinum</i>	Moderate	
Italian ryegrass	<i>Lolium multiflorum</i>	Moderate	
Family Polygonaceae			
Japanese knotweed	<i>Polygonum cuspidatum</i>	Moderate-Alert	B
Giant knotweed	<i>Polygonum sachalinense</i>	Moderate-Alert	B
Family Scrophulariaceae			
Dalmation toadflax	<i>Linaria genistifolia</i> subsp. <i>dalmatica</i>	Moderate	A
Yellow toadflax	<i>Linaria vulgaris</i>	Moderate	
Family Simaroubaceae			
Tree-of-heaven	<i>Ailanthus altissima</i>	Moderate	
Family Solanaceae			
Tree tobacco	<i>Nicotiana glauca</i>	Moderate	

Appendix 2 – Map Symbolology

All abundance, spread, and management values are based on USGS 7.5-minute quadrangles (hereafter referred to as “quads”). This grid offers fairly uniform rectangles across the U.S. Quads measure approximately 8.5 miles north to south, and range from approximately 7.2 miles east to west on the southern border of the state to 6.5 miles east to west on the northern border of the state.

Data on abundance, spread, and management are primarily based on interviews with local natural resource managers to collect “expert knowledge”. The online risk mapping system in development will document who has contributed information for a given quad and will allow ongoing updates. As a secondary source, we also used GIS data sets collected from organizations throughout the state, as well as invasive plant location data aggregated in the Calflora and Consortium of California Herbaria online databases. These data appear in quads only where resource managers indicated that they are not aware of a plant species’ presence. A small “\” symbol and shading for low abundance indicate quads where presence is assumed due only to GIS data. Actual presence in these quads should be confirmed on the ground, since the GIS data may not be current or accurate.

Abundance: Red shading indicates three categories for abundance: low, medium and high. These are relative values based on the typical invasion curve, where abundance starts low (during the “lag phase”), then increases rapidly, and finally levels off when the ecological niche is saturated. In our schema, “low” represents an infestation that is early on the invasion curve. “Medium” represents the expansion phase of invasion, where abundance is increasing. “High” represents the final stage where an infestation has filled the available ecological niche and is no longer increasing appreciably. Depending on the extent

of the ecological niche for a given species, the actual area infested can vary considerably from species to species.

Spread: A black dot in the center of a quad indicates that the species is spreading. No dot means the infestation is stable and not increasing. Quads where abundance is low can be stable or spreading. Quads where abundance is medium are, by definition, spreading, unless there is active management. Quads where abundance is high are, by definition, not able to spread any further.

Management: A white dot in the center of a quad indicates that the species is under active management. Management does not imply that the infestation is necessarily decreasing; in some cases the overall trend in the quad may still be that the infestation is increasing. However, we do not show that information on these maps. Quads where the species has previously been eradicated and is no longer present are shown with an “x” symbol.

Suitability: Green shading indicates three categories of climatic suitability: low, medium, and high. These are based on output from models based on current populations in California. In general, we believe our range maps are conservative and may underestimate the potential range of a given species, because: (1) they are based only on places where a plant has already invaded in the state, (2) they are based only on places where we have data on that plant, and (3) we calibrated the models to restrict estimates to only areas that are very similar climatically to those areas already invaded. Suitability projections for 2050 use an A2 emissions scenario (IPPC 2007), downscaled climate data from the Canadian Centre for Climate Modeling and Analysis, and Maxent software (Phillips et al. 2006) to extrapolate from current plant locations to potential range.