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#### ARIZONA CENTRAL HIGHLANDS PLANT HERBIVORY SERIES

# **Elk Plant Resistance Ratings**

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Elk, or Wapiti (*Cervus canadensis*) are the second largest species in the deer family (*Cervidae*) worldwide, with bull (male) elk averaging 900lbs. Although Meriam's Elk (*C. canadensis merriami*), the sub-species of elk which was native to the arid southwest is now extinct, the Rocky Mountain Elk (*C. c. nelsoni*) was introduced to Arizona in 1922 when 83 animals were brought from Yellowstone National Park and released in Cabin Draw, near Chevlon Creek. These ruminants eat a variety of plants, depending on the season and what is available in their habitat. In general, elk consume grasses as well as landscape shrubs and forbs.

As the diets of these animals change with wild food availability, yearly precipitation and temperature variations, it can be difficult to predict which plants will be appealing for consumption. Additionally, plants may be more desirable when they are young and/or well fertilized. Due to this variability, instead of creating a straightforward list of plants in which herbivory is described in a "yes" or "no" fashion, a survey of both the existing literature on the subject and first-hand community experience was conducted. The results from that survey are presented in this publication as a percentage of those responses, which may be used to infer probability of herbivory.

The best method for assuring that your plants are protected from elk is exclusion. Please see article <u>AZ1855</u> for more informtion on fencing.

# **Materials and Methods**

Data were collected from multiple sources (websites, social media and surveys), many of which also reported data from their own sources, though only tallied as a single response. The goal was to obtain herbivory data from previous research on elk and from Arizona residents and businesses with direct experience with the animals. "n" represents the number of data sources (see sources) who provided input; the larger the n value, generally the greater our confidence in the reported probability of damage, though as stated earlier, a single source could be an aggregate of several. Because animal behavior can vary based on several variables such as temperature and rainfall, these plant data have been categorized as "never to rarely damaged", "sometimes damaged" or "frequently damaged", with percentages based on the number of responses/sources for each plant.

Annual	% Probability of Damage		
Plant Name & Number of Data Points	Never to Rearely Damaged %	Sometimes Damaged %	Frequently Severely Damaged %
Alyssum (Alyssum sp.) n=7	57.14%	28.57%	14.29%
Amaranth (Amaranthus sp.) n=1	100.00%	0.00%	0.00%
Angel Trumpet ( <i>Datura wrightii</i> ) n=5	100.00%	0.00%	0.00%
Arizona Popcorn Flower ( <i>Plagiobothrys Arizonicus</i> ) n=1	0.00%	0.00%	100.00%
Basil ( <i>Ocimum basilicum</i> ) n=6	66.67%	16.67%	16.67%
Borage (Borage officinalis) n=1	0.00%	100.00%	0.00%
Broccoli (Brassica sp.) n=2	100.00%	0.00%	0.00%
California Poppy ( <i>Eschscholzia</i> californica) n=4	100.00%	0.00%	0.00%
Chili pepper ( <i>Capsicum</i> annuum) n=2	100.00%	0.00%	0.00%
Cleome ( <i>Cleome hasslerana</i> ) n=2	100.00%	0.00%	0.00%
Corn (Zea mays) n=4	75.00%	0.00%	25.00%
Cornflower, Bachelor's button (Centaurea cyanus) n=2	50.00%	0.00%	50.00%
Cosmos (Cosmos sp.) n=2	100.00%	0.00%	0.00%
Cranesbill ( <i>Geranium</i> sp.) n=1	100.00%	0.00%	0.00%
Cucumbers ( <i>Cucumis satuvys</i> ) n=1	100.00%	0.00%	0.00%
Dahlia ( <i>Dahlia</i> sp.) n=1	0.00%	100.00%	0.00%
Eggplant ( <i>Solanum melongena</i> ) n=2	100.00%	0.00%	0.00%
Flowering Tobacco ( <i>Nicotiana</i> sp.) n=1	100.00%	0.00%	0.00%
French marigold ( <i>Tagetes</i> patula) n=1	100.00%	0.00%	0.00%
Gazania, Colorado Gold ( <i>Gazania</i> ) n=1	0.00%	100.00%	0.00%
Icelandic Poppy ( <i>Papaver</i> nudicaule) n=1	0.00%	0.00%	100.00%
Lantana (Lantana sp.) n=2	100.00%	0.00%	0.00%
Marigold ( <i>Tagetes</i> sp.) n=5	100.00%	0.00%	0.00%
Melons (Cucurbitaceae) n=1	100.00%	0.00%	0.00%
Morning glory ( <i>Ipomea</i> sp.) n=4	100.00%	0.00%	0.00%
Nasturtium ( <i>Tropaeolum majus</i> ) n=1	100.00%	0.00%	0.00%

Annual continued	% Probability of Damage		
Plant Name & Number of Data Points	Never to Rearely Damaged %	Sometimes Damaged %	Frequently Severely Damaged %
Pansies (Viola sp.) n=1	100.00%	0.00%	0.00%
Peas (Pisum sativum) n=1	100.00%	0.00%	0.00%
Petunia ( <i>Petunia</i> sp.) n=3	66.67%	0.00%	33.33%
Potato (Solanum tuberosum) n=1	100.00%	0.00%	0.00%
Pumpkin ( <i>Cucurbita</i> sp.) n=1	100.00%	0.00%	0.00%
Salvia (Salvia sp.) n=3	100.00%	0.00%	0.00%
Snapdragon ( <i>Antirrhimun majus</i> ) n=2	100.00%	0.00%	0.00%
Spinach (Spinacia oleracea) n=2	100.00%	0.00%	0.00%
Squash (Cucurbita sp.) n=2	100.00%	0.00%	0.00%
Summer squash (Cucurbita pepo) n=2	0.00%	0.00%	100.00%
Sunflower (Helianthus sp.) n=4	75.00%	0.00%	25.00%
Sweet alyssum (Lobularia maritima) n=2	50.00%	0.00%	50.00%
Sweet peas (Lathyrus odoratus) n=1	100.00%	0.00%	0.00%
Tomato (Solanum lycopersicum) n=2	100.00%	0.00%	0.00%
Verbena ( <i>Verbena</i> sp.) n=1	100.00%	0.00%	0.00%
Zinnia ( <i>Zinnia</i> sp.) n=1	100.00%	0.00%	0.00%

Biennial	% Probability of Damage		
Plant Name & Number of Data Points	Never to Rearely Damaged %	Sometimes Damaged %	Frequently Severely Damaged %
Foxglove ( <i>Digitalis</i> sp.) n=4	100.00%	0.00%	0.00%
Hollyhock (Alcea sp.) n=5	60.00%	40.00%	0.00%
Sweet William ( <i>Dianthus</i> barbatus) n=1	100.00%	0.00%	0.00%

Bulb	% Probability of Damage		
Plant Name & Number of Data Points	Never to Rearely Damaged %	Sometimes Damaged %	Frequently Severely Damaged %
Calla lily (Zantedeschia sp.) n=3	33.33%	33.33%	33.33%
Crocus (Crocus sp.) n=3	100.00%	0.00%	0.00%
Daffodil ( <i>Narcissus</i> sp.) n=7	100.00%	0.00%	0.00%
Fritillaria n=1	100.00%	0.00%	0.00%
Grape Hyacinth ( <i>Muscari</i> sp.) n=2	100.00%	0.00%	0.00%
Ornamental onion ( <i>Alliums</i> sp.) n=1	100.00%	0.00%	0.00%
Tulip (Tulip sp.) n=2	50.00%	50.00%	0.00%

Grass	% Probability of Damage		
Plant Name & Number of Data Points	Never to Rearely Damaged %	Sometimes Damaged %	Frequently Severely Damaged %
Blue Fescue (Festuca sp.) n=1	100.00%	0.00%	0.00%
Ornamental grasses n=1	100.00%	0.00%	0.00%
Pampus grass ( <i>Cortaderia</i> selloana) n=1	100.00%	0.00%	0.00%
Squirreltail grass ( <i>Elymus elymoides</i> ) n=2	100.00%	0.00%	0.00%

Groundcover	% Probability of Damage		
Plant Name & Number of Data Points	Never to Rearely Damaged %	Sometimes Damaged %	Frequently Severely Damaged %
Dead Nettle (Lamium sp.) n=1	100.00%	0.00%	0.00%
Lily of the valley (Convallaria majalis) n=1	100.00%	0.00%	0.00%
Sweet Woodruff (Galium odoratum) n=1	100.00%	0.00%	0.00%
Vinca (Vinca sp.) n=3	66.67%	33.33%	0.00%

Perennial	% Probability of Damage		
Plant Name & Number of Data Points	Never to Rearely Damaged %	Sometimes Damaged %	Frequently Severely Damaged %
4 o'clock ( <i>Mirabilis jalapa</i> ) n=4	75.00%	25.00%	0.00%
Agave (Agave sp.) n=2	100.00%	0.00%	0.00%
Anise Hyssop ( <i>Agastache</i> sp.) n=1	100.00%	0.00%	0.00%
Asparagus (Asparagus officinalis) n=1	100.00%	0.00%	0.00%
Aster (Aster sp.) n=4	100.00%	0.00%	0.00%
Astilbe (Astilbe sp.) n=1	100.00%	0.00%	0.00%
Bear Grass (Nolina microcarpa) n=1	100.00%	0.00%	0.00%
Beard tongue, Penstemon (Penstemon sp.) n=2	50.00%	50.00%	0.00%
Bee Balm (Monarda sp.) n=3	100.00%	0.00%	0.00%
Black Eyed Susan ( <i>Rudbeckia</i> sp.) n=4	75.00%	25.00%	0.00%
Blackfoot daisy (Melanpodium leucanthum) n=1	100.00%	0.00%	0.00%
Blanket Flower (Gaillardia) n=2	100.00%	0.00%	0.00%
Bleeding heart ( <i>Dicentra</i> sp.) n=2	50.00%	0.00%	50.00%
Blue Dick ( <i>Dichelostemma</i> capitatum) n=1	0.00%	0.00%	100.00%
Blue Flax ( <i>Linum perrene</i> ) n=3	100.00%	0.00%	0.00%
Brittlebush ( <i>Encelia farinosa</i> ) n=1	0.00%	0.00%	100.00%
Butterfly weed (Asclepias tuberosa) n=2	100.00%	0.00%	0.00%
Candytuft (Iberis sp.) n=1	100.00%	0.00%	0.00%

Perennial continued	% Probability of Damage		
Plant Name & Number of Data Points	Never to Rearely Damaged %	Sometimes Damaged %	Frequently Severely Damaged %
Carnation, Pinks ( <i>Dianthus</i> sp.) n=1	100.00%	0.00%	0.00%
Catmint (Nepeta sp.) n=4	100.00%	0.00%	0.00%
Catnip (Nepeta sp.) n=2	100.00%	0.00%	0.00%
Chives (Allium schoenoprasum) n=3	100.00%	0.00%	0.00%
Chocolate Flower (Berlandieria lyrata) n=1	100.00%	0.00%	0.00%
Chrysanthemum (Chrysanthemum sp.) n=3	33.33%	33.33%	33.33%
Columbine (Aquilegia sp.) n=2	50.00%	50.00%	0.00%
Comfrey (Symphytum officinale) n=1	0.00%	0.00%	100.00%
Coneflower (Echinacea) n=4	100.00%	0.00%	0.00%
Cornflower ( <i>Centaurea</i> montana) n=1	100.00%	0.00%	0.00%
Currant, Gooseberry ( <i>Ribes</i> sp.) n=1	100.00%	0.00%	0.00%
Daisies (Asteraceae) n=4	50.00%	50.00%	0.00%
Daylily (Hemerocallis sp.) n=1	100.00%	0.00%	0.00%
Dusty Miller (Senecio) n=2	100.00%	0.00%	0.00%
Euphorbia ( <i>Euphorbia</i> sp.) n=1	100.00%	0.00%	0.00%
Evening primrose ( <i>Oenohtera</i> sp.) n=1	0.00%	100.00%	0.00%
False Spirea ( <i>Sorbaria</i> sorbifolia) n=1	100.00%	0.00%	0.00%
Ferns (Many species) n=1	100.00%	0.00%	0.00%
Feverfew (Chrysanthemum parthenium) n=2	50.00%	50.00%	0.00%
Fleabane ( <i>Erigeron</i> sp.) n=1	100.00%	0.00%	0.00%
Gayfeather (Liatris sp.) n=2	50.00%	50.00%	0.00%
Geranium ( <i>Geranium</i> sp.) n=3	66.67%	33.33%	0.00%
Geranium ( <i>Pelargonium</i> sp.) n=4	50.00%	50.00%	0.00%
Germander ( <i>Teucrium</i> sp.) n=1	100.00%	0.00%	0.00%
Globe Thistle ( <i>Echinops</i> ritro) n=1	100.00%	0.00%	0.00%
Gloriosa Daisy ( <i>Rudbeckia</i> hirta) n=2	50.00%	50.00%	0.00%
Goldenrod (Solidago sp.) n=3	100.00%	0.00%	0.00%
Grape (Vitis sp.) n=1	100.00%	0.00%	0.00%
Hens & Chicks (Sempervivum sp.) n=3	66.67%	33.33%	0.00%
Herbs (except basil) (Many species) n=2	100.00%	0.00%	0.00%
Honeysuckle (Lonicera) n=1	0.00%	100.00%	0.00%
Horehound ( <i>Marrubium vulgare</i> ) n=1	100.00%	0.00%	0.00%
Horseradish ( <i>Armoracia</i> rusticana) n=1	100.00%	0.00%	0.00%
Hummingbird Mint ( <i>Agastache</i> sp.) n=4	75.00%	25.00%	0.00%
Iris ( <i>Iris</i> sp.) n=5	60.00%	40.00%	0.00%

Plant Name & Number of Data Points         Reserving Rearity Damaged with Plant Pearly Da	Perennial continued	% Probability of Damage		
n=1   Jupiter's beard (Centranthus)   100.00%   0.00%		Rearely	Damaged	Severely
n=1 Ladys' mantile (Alchemilla sp.) n=1 Ladys' mantile (Alchemilla sp.) n=1 Ladys' mantile (Alchemilla sp.) n=1 Lawender (Lavandula sp.) n=9 B8.89% 11.111% 0.00%		100.00%	0.00%	0.00%
n=1 Lamb's ear(Stachys byzantina) n=4 Lawender(Lavandula sp.) n=9 Bas.89% 11.11% 0.00% Lavender Cotton (Santolina sp.) n=1 100.00% 10		100.00%	0.00%	0.00%
n=4 Lavender(Lavandula sp.) n=9 B8.89% Lavender Cotton (Santolina sp.) n=1 100.00% 0.00%		100.00%	0.00%	0.00%
Lavender Cotton (Santolina sp.) n=1  Leek (Allium ampeloprasum) n=1  Lemon balm (Melissa officinalis) n=1  Lungwort (Pulmonaria sp.) n=1 100.00% 0.00% 0.00%  Lunjmo (Lupinus sp.) n=3 100.00% 0.00% 0.00%  Marjoram (Majorana) n=1 100.00% 0.00% 0.00%  Mexican Hat (Ratibida) n=2 100.00% 0.00% 0.00%  Milkweed, whorled (Asclepias sp.) n=1 100.00% 0.00% 0.00%  Millein (Verbascum sp.) n=1 100.00% 0.00% 0.00%  Mullein (Verbascum sp.) n=1 100.00% 0.00% 0.00%  Moullein plant (Physostegia sp.) n=1 100.00% 0.00% 0.00%  Orange globe mallow (Sphaeralcea munroana) n=1 100.00% 0.00% 0.00%  Oregano (Origanum sp.) n=2 100.00% 0.00% 0.00%  Peony (Paeonia sp.) n=2 100.00% 0.00% 0.00%  Phlox, Moss pink (Phiox sp.) n=2 100.00% 0.00% 0.00%  Pincushin flower (Scabiosa caucasica) n=1 100.00% 0.00% 0.00%  Prickly Pear (Opuntia sp.) n=1 100.00% 0.00% 0.00%  Prickly Pear (Opuntia sp.) n=1 100.00% 0.00% 0.00%  Red yucca (Hesperaloe) n=1 100.00% 0.00% 0.00%  Sea holly (Eryngium agarifolium) n=2 100.00% 0.00% 0.00%  Sea holly (Eryngium agarifolium) n=2 100.00% 0.00% 0.00%  Sea thrift (Armeria sp.) n=1 100.00% 0.00% 0.00%  Shasta daisy (Leucanthemum x superbum) n=4  Silver lace vine (Polygonum 100.00% 0.00%		100.00%	0.00%	0.00%
sp.) n=1 Leek (Allium ampeloprasum)	Lavender(Lavandula sp.) n=9	88.89%	11.11%	0.00%
n=1  Lemon balm (Melissa officinalis) n=1  Lungwort (Pulmonaria sp.) n=1 100.00% 0.00% 0.00%  Lupine (Lupinus sp.) n=3 100.00% 0.00% 0.00%  Marjoram (Majorana) n=1 100.00% 0.00% 0.00%  Mexican Hat (Ratibida) n=2 100.00% 0.00% 0.00%  Mikweed, whorled (Asclepias sp.) n=3 100.00% 0.00% 0.00%  Millein (Verbascum sp.) n=1 100.00% 0.00% 0.00%  Mullein (Verbascum sp.) n=1 100.00% 0.00% 0.00%  Deddient plant (Physostegia sp.) n=1 100.00% 0.00% 0.00%  Orange globe mallow (Sphaeralcea munroana) n=1 100.00% 0.00% 0.00%  Oriental Poppy (Papaver orientale) n=2 100.00% 0.00% 0.00%  Phlox, Moss pink (Phlox sp.) n=2 100.00% 0.00% 0.00%  Phospy (Paeonia sp.) n=2 100.00% 0.00% 0.00%  Phopy (Papaver sp.) n=3 66.67% 0.00% 0.00%  Princushin flower (Scabiosa caucasica) n=1 100.00% 0.00% 0.00%  Red-hot-poker (Kniphofia uvaria) n=4 100.00% 0.00% 0.00%  Red-hot-poker (Kniphofia uvaria) n=3 100.00% 0.00% 0.00%  Red-hot-poker (Kniphofia uvaria) n=3 100.00% 0.00% 0.00%  Rosemary (Rosmarinus officialis) n=3 100.00% 0.00% 0.00%  Red (Ruta sp.) n=1 100.00% 0.00% 0.00%  Sage (Salvia sp.) n=3 100.00% 0.00% 0.00%  Sea holly (Eryngium agavifolium) n=2 100.00% 0.00% 0.00%  Shasta daisy (Leucanthemum x superbum) n=4 100.00% 0.00%  Silver lace vine (Polygonum 100.00% 0.00%		100.00%	0.00%	0.00%
n=1         100.00%         0.00%         0.00%           Lungwort (Pulmonaria sp.) n=3         100.00%         0.00%         0.00%           Marjoram (Majorana) n=1         100.00%         0.00%         0.00%           Mexican Hat (Ratibida) n=2         100.00%         0.00%         0.00%           Milkweed, whorled (Asclepias sp.) n=2         100.00%         0.00%         0.00%           Millein (Verbascum sp.) n=3         100.00%         0.00%         0.00%           Mullein (Verbascum sp.) n=1         100.00%         0.00%         0.00%           Mullein (Verbascum sp.) n=1         100.00%         0.00%         0.00%           Obedient plant (Physostegia sp.) n=1         100.00%         0.00%         0.00%           Orange globe mallow (Sphaeralcea munroana) n=1         100.00%         0.00%         0.00%           Orregano (Origanum sp.) n=2         100.00%         0.00%         0.00%           Oriental Poppy (Papaver orientale) n=2         100.00%         0.00%         0.00%           Peony (Paeonia sp.) n=2         100.00%         0.00%         0.00%           Phlox, Moss pink (Phlox sp.) n=2         50.00%         50.00%         0.00%           Pincushin flower (Scabiosa caucasica) n=1         0.00%         0.00%         0.00%		100.00%	0.00%	0.00%
Lupine (Lupinus sp.) n=3	,	100.00%	0.00%	0.00%
Marjoram (Majorana) n=1         100.00%         0.00%         0.00%           Mexican Hat (Ratibida) n=2         100.00%         0.00%         0.00%           Milkweed, whorled (Asclepias sp.) n=2         100.00%         0.00%         0.00%           Mint (Mentha sp.) n=3         100.00%         0.00%         0.00%           Mullein (Verbascum sp.) n=1         100.00%         0.00%         0.00%           Obedient plant (Physostegia sp.) n=1         0.00%         100.00%         0.00%           Orange globe mallow (Sphaeriacea munroana) n=1         100.00%         0.00%         0.00%           Orregano (Origanum sp.) n=2         100.00%         0.00%         0.00%           Origania (Papaver orientale) n=2         100.00%         0.00%         0.00%           Peony (Paeonia sp.) n=2         100.00%         0.00%         0.00%           Phlox, Moss pink (Phlox sp.) n=2         50.00%         50.00%         0.00%           Pincushin flower (Scabiosa caucasica) n=1         0.00%         100.00%         0.00%           Prickly Pear (Opuntia sp.) n=3         66.67%         0.00%         0.00%           Red yucca (Hesperaloe) n=1         100.00%         0.00%         0.00%           Red-hot-poker (Kniphofia uvaria) n=4         75.00%         25.00%<	Lungwort ( <i>Pulmonaria</i> sp.) n=1	100.00%	0.00%	0.00%
Mexican Hat (Ratibida) n=2         100.00%         0.00%         0.00%           Milkweed, whorled (Asclepias sp.) n=2         100.00%         0.00%         0.00%           Mint (Mentha sp.) n=3         100.00%         0.00%         0.00%           Mullein (Verbascum sp.) n=1         100.00%         0.00%         0.00%           Obedient plant (Physostegia sp.) n=1         0.00%         100.00%         0.00%           Obedient plant (Physostegia sp.) n=1         100.00%         0.00%         0.00%           Orange globe mallow (Sphaeralcea munroana) n=1         100.00%         0.00%         0.00%           Oregano (Origanum sp.) n=2         100.00%         0.00%         0.00%           Oriental Poppy (Papaver orientale) n=2         100.00%         0.00%         0.00%           Peony (Paeonia sp.) n=2         100.00%         0.00%         0.00%           Phiox, Moss pink (Phlox sp.) n=2         50.00%         50.00%         0.00%           Pincushin flower (Scabiosa caucasica) n=1         0.00%         100.00%         0.00%           Prickly Pear (Opuntia sp.) n=3         66.67%         0.00%         0.00%           Prickly Pear (Opuntia sp.) n=1         100.00%         0.00%         0.00%           Red-hot-poker (Kniphofia uvaria) n=4         75.00% <td>Lupine (Lupinus sp.) n=3</td> <td>100.00%</td> <td>0.00%</td> <td>0.00%</td>	Lupine (Lupinus sp.) n=3	100.00%	0.00%	0.00%
Milkweed, whorled (Asclepias sp.) n=2         100.00%         0.00%         0.00%           Mint (Mentha sp.) n=3         100.00%         0.00%         0.00%           Mullein (Verbascum sp.) n=1         100.00%         0.00%         0.00%           Obedient plant (Physostegia sp.) n=1         0.00%         100.00%         0.00%           Orange globe mallow (Sphaeralcea munroana) n=1         100.00%         0.00%         0.00%           Oregano (Origanum sp.) n=2         100.00%         0.00%         0.00%           Oriental Poppy (Papaver orientale) n=2         100.00%         0.00%         0.00%           Peony (Paeonia sp.) n=2         100.00%         0.00%         0.00%           Phlox, Moss pink (Phlox sp.) n=2         50.00%         50.00%         0.00%           Pincushin flower (Scabiosa caucasica) n=1         0.00%         100.00%         0.00%           Poppy (Papaver sp.) n=3         66.67%         0.00%         33.33%           Prickly Pear (Opuntia sp.) n=1         100.00%         0.00%         0.00%           Red-hot-poker (Kniphofia uvaria) n=4         75.00%         25.00%         0.00%           Red-hot-poker (Kniphofia uvaria) n=4         100.00%         0.00%         0.00%           Rosemary (Rosmarinus officialis) n=3         100.0	Marjoram ( <i>Majorana</i> ) n=1	100.00%	0.00%	0.00%
sp.) n=2         100.00%         0.00%         0.00%           Mint (Mentha sp.) n=3         100.00%         0.00%         0.00%           Mullein (Verbascum sp.) n=1         100.00%         0.00%         0.00%           Obedient plant (Physostegia sp.) n=1         0.00%         100.00%         0.00%           Sp.) n=1         100.00%         0.00%         0.00%           Orange globe mallow (Sphaeralcea munroana) n=1         100.00%         0.00%         0.00%           Oregano (Origanum sp.) n=2         100.00%         0.00%         0.00%           Oriental Poppy (Papaver orientale) n=2         100.00%         0.00%         0.00%           Peony (Paeonia sp.) n=2         100.00%         0.00%         0.00%           Phlox, Moss pink (Phlox sp.) n=2         50.00%         50.00%         0.00%           Pincushin flower (Scabiosa caucasica) n=1         0.00%         100.00%         0.00%           Prickly Pear (Opuntia sp.) n=3         66.67%         0.00%         33.33%           Prickly Pear (Opuntia sp.) n=1         100.00%         0.00%         0.00%           Red-hot-poker (Kniphofia uvaria) n=4         75.00%         25.00%         0.00%           Red-hot-poker (Kniphofia uvaria) n=4         100.00%         0.00%         0.00% </td <td>Mexican Hat (Ratibida) n=2</td> <td>100.00%</td> <td>0.00%</td> <td>0.00%</td>	Mexican Hat (Ratibida) n=2	100.00%	0.00%	0.00%
Mullein (Verbascum sp.) n=1         100.00%         0.00%         0.00%           Obedient plant (Physostegia sp.) n=1         0.00%         100.00%         0.00%           Orange globe mallow (Sphaeralcea munroana) n=1         100.00%         0.00%         0.00%           Oregano (Origanum sp.) n=2         100.00%         0.00%         0.00%           Oriental Poppy (Papaver orientale) n=2         100.00%         0.00%         0.00%           Peony (Paeonia sp.) n=2         100.00%         0.00%         0.00%           Phlox, Moss pink (Phlox sp.) n=2         50.00%         50.00%         0.00%           Pincushin flower (Scabiosa caucasica) n=1         0.00%         100.00%         0.00%           Prickly Pear (Opuntia sp.) n=3         66.67%         0.00%         0.00%           Prickly Pear (Opuntia sp.) n=1         100.00%         0.00%         0.00%           Red-hot-poker (Kniphofia uvaria) n=4         75.00%         25.00%         0.00%           Rosemary (Rosmarinus officialis) n=3         100.00%         0.00%         0.00%           Rue (Ruta sp.) n=1         100.00%         0.00%         0.00%           Sea holly (Eryngium agavifolium) n=2         100.00%         0.00%         0.00%           Sea thrift (Armeria sp.) n=1         100.00% <td></td> <td>100.00%</td> <td>0.00%</td> <td>0.00%</td>		100.00%	0.00%	0.00%
Obedient plant (Physostegia sp.) n=1         0.00%         100.00%         0.00%           Orange globe mallow (Sphaeralcea munroana) n=1         100.00%         0.00%         0.00%           Oregano (Origanum sp.) n=2         100.00%         0.00%         0.00%           Oriental Poppy (Papaver orientale) n=2         100.00%         0.00%         0.00%           Peony (Paeonia sp.) n=2         100.00%         0.00%         0.00%           Phlox, Moss pink (Phlox sp.) n=2         50.00%         50.00%         0.00%           Pincushin flower (Scabiosa caucasica) n=1         0.00%         100.00%         0.00%           Poppy (Papaver sp.) n=3         66.67%         0.00%         0.00%           Prickly Pear (Opuntia sp.) n=1         100.00%         0.00%         0.00%           Red yucca (Hesperaloe) n=1         100.00%         0.00%         0.00%           Red-hot-poker (Kniphofia uvaria) n=4         75.00%         25.00%         0.00%           Rhubarb (Rheum rhabarbarum) n=4         100.00%         0.00%         0.00%           Rosemary (Rosmarinus officialis) n=3         100.00%         0.00%         0.00%           Sea (Salvia sp.) n=1         100.00%         0.00%         0.00%           Sea thrift (Armeria sp.) n=1         100.00%         <	Mint ( <i>Mentha</i> sp.) n=3	100.00%	0.00%	0.00%
sp.) n=1         0.00%         100.00%         0.00%           Orange globe mallow (Sphaeralcea munroana) n=1         100.00%         0.00%         0.00%           Oregano (Origanum sp.) n=2         100.00%         0.00%         0.00%           Oriental Poppy (Papaver orientale) n=2         100.00%         0.00%         0.00%           Peony (Paeonia sp.) n=2         100.00%         0.00%         0.00%           Phlox, Moss pink (Phlox sp.) n=2         50.00%         50.00%         0.00%           Pincushin flower (Scabiosa caucasica) n=1         0.00%         100.00%         0.00%           Poppy (Papaver sp.) n=3         66.67%         0.00%         33.33%           Prickly Pear (Opuntia sp.) n=1         100.00%         0.00%         0.00%           Red yucca (Hesperaloe) n=1         100.00%         0.00%         0.00%           Red-hot-poker (Kniphofia uvaria) n=4         75.00%         25.00%         0.00%           Rhubarb (Rheum rhabarbarum) n=4         100.00%         0.00%         0.00%           Rosemary (Rosmarinus officialis) n=3         100.00%         0.00%         0.00%           Rue (Ruta sp.) n=1         100.00%         0.00%         0.00%           Sea holly (Eryngium agavifolium) n=2         100.00%         0.00%	Mullein (Verbascum sp.) n=1	100.00%	0.00%	0.00%
(Sphaeralcea munroana) n=1         100.00%         0.00%         0.00%           Oregano (Origanum sp.) n=2         100.00%         0.00%         0.00%           Oriental Poppy (Papaver orientale) n=2         100.00%         0.00%         0.00%           Peony (Paeonia sp.) n=2         100.00%         0.00%         0.00%           Phlox, Moss pink (Phlox sp.) n=2         50.00%         50.00%         0.00%           Pincushin flower (Scabiosa caucasica) n=1         0.00%         100.00%         0.00%           Prickly Pear (Opuntia sp.) n=3         66.67%         0.00%         0.00%           Prickly Pear (Opuntia sp.) n=1         100.00%         0.00%         0.00%           Red-hot-poker (Kniphofia uvaria) n=4         75.00%         25.00%         0.00%           Red-hot-poker (Kniphofia uvaria) n=4         100.00%         0.00%         0.00%           Rosemary (Rosmarinus officialis) n=3         100.00%         0.00%         0.00%           Rue (Ruta sp.) n=1         100.00%         0.00%         0.00%           Sea holly (Eryngium agavifolium) n=2         100.00%         0.00%         0.00%           Sea thrift (Armeria sp.) n=1         100.00%         0.00%         0.00%           Shasta daisy (Leucanthemum x superbum) n=4         100.00%		0.00%	100.00%	0.00%
Oriental Poppy (Papaver orientale) n=2         100.00%         0.00%         0.00%           Peony (Paeonia sp.) n=2         100.00%         0.00%         0.00%           Phlox, Moss pink (Phlox sp.) n=2         50.00%         50.00%         0.00%           Pincushin flower (Scabiosa caucasica) n=1         0.00%         100.00%         0.00%           Poppy (Papaver sp.) n=3         66.67%         0.00%         0.00%           Prickly Pear (Opuntia sp.) n=1         100.00%         0.00%         0.00%           Red yucca (Hesperaloe) n=1         100.00%         0.00%         0.00%           Red-hot-poker (Kniphofia uvaria) n=4         75.00%         25.00%         0.00%           Rhubarb (Rheum rhabarbarum) n=4         100.00%         0.00%         0.00%           Rosemary (Rosmarinus officialis) n=3         100.00%         0.00%         0.00%           Rue (Ruta sp.) n=1         100.00%         0.00%         0.00%           Sea holly (Eryngium agavifolium) n=2         100.00%         0.00%         0.00%           Sea thrift (Armeria sp.) n=1         100.00%         0.00%         0.00%           Shasta daisy (Leucanthemum x superbum) n=4         50.00%         50.00%         0.00%           Silver lace vine (Polygonum         100.00%         0.		100.00%	0.00%	0.00%
orientale) n=2         100.00%         0.00%         0.00%           Peony (Paeonia sp.) n=2         100.00%         0.00%         0.00%           Phlox, Moss pink (Phlox sp.) n=2         50.00%         50.00%         0.00%           Pincushin flower (Scabiosa caucasica) n=1         0.00%         100.00%         0.00%           Poppy (Papaver sp.) n=3         66.67%         0.00%         0.00%           Prickly Pear (Opuntia sp.) n=1         100.00%         0.00%         0.00%           Red yucca (Hesperaloe) n=1         100.00%         0.00%         0.00%           Red-hot-poker (Kniphofia uvaria) n=4         75.00%         25.00%         0.00%           Rhubarb (Rheum rhabarbarum) n=4         100.00%         0.00%         0.00%           Rosemary (Rosmarinus officialis) n=3         100.00%         0.00%         0.00%           Rue (Ruta sp.) n=1         100.00%         0.00%         0.00%           Sea holly (Eryngium agavifolium) n=2         100.00%         0.00%         0.00%           Sea thrift (Armeria sp.) n=1         100.00%         0.00%         0.00%           Shasta daisy (Leucanthemum x superbum) n=4         50.00%         50.00%         0.00%           Silver lace vine (Polygonum         100.00%         0.00%         0.0	Oregano ( <i>Origanum</i> sp.) n=2	100.00%	0.00%	0.00%
Phlox, Moss pink ( <i>Phlox</i> sp.) n=2         50.00%         50.00%         0.00%           Pincushin flower ( <i>Scabiosa caucasica</i> ) n=1         0.00%         100.00%         0.00%           Poppy ( <i>Papaver</i> sp.) n=3         66.67%         0.00%         33.33%           Prickly Pear ( <i>Opuntia</i> sp.) n=1         100.00%         0.00%         0.00%           Red yucca ( <i>Hesperaloe</i> ) n=1         100.00%         0.00%         0.00%           Red-hot-poker ( <i>Kniphofia uvaria</i> ) n=4         75.00%         25.00%         0.00%           Rhubarb ( <i>Rheum rhabarbarum</i> ) n=4         100.00%         0.00%         0.00%           Rosemary ( <i>Rosmarinus officialis</i> ) n=3         100.00%         0.00%         0.00%           Rue ( <i>Ruta</i> sp.) n=1         100.00%         0.00%         0.00%           Sea holly ( <i>Eryngium agavifolium</i> ) n=2         100.00%         0.00%         0.00%           Sea thrift ( <i>Armeria</i> sp.) n=1         100.00%         0.00%         0.00%           Shasta daisy ( <i>Leucanthemum x superbum</i> ) n=4         50.00%         50.00%         0.00%           Silver lace vine ( <i>Polygonum</i> 100.00%         0.00%         0.00%		100.00%	0.00%	0.00%
n=2         50.00%         50.00%         0.00%           Pincushin flower (Scabiosa caucasica) n=1         0.00%         100.00%         0.00%           Poppy (Papaver sp.) n=3         66.67%         0.00%         33.33%           Prickly Pear (Opuntia sp.) n=1         100.00%         0.00%         0.00%           Red yucca (Hesperaloe) n=1         100.00%         0.00%         0.00%           Red-hot-poker (Kniphofia uvaria) n=4         75.00%         25.00%         0.00%           Rhubarb (Rheum rhabarbarum) n=4         100.00%         0.00%         0.00%           Rosemary (Rosmarinus officialis) n=3         100.00%         0.00%         0.00%           Rue (Ruta sp.) n=1         100.00%         0.00%         0.00%           Sage (Salvia sp.) n=3         100.00%         0.00%         0.00%           Sea holly (Eryngium agavifolium) n=2         100.00%         0.00%         0.00%           Sea thrift (Armeria sp.) n=1         100.00%         0.00%         0.00%           Shasta daisy (Leucanthemum x superbum) n=4         50.00%         50.00%         0.00%           Silver lace vine (Polygonum         100.00%         0.00%         0.00%	Peony ( <i>Paeonia</i> sp.) n=2	100.00%	0.00%	0.00%
caucasica) n=1         0.00%         0.00%         0.00%           Prickly Pear (Opuntia sp.) n=1         100.00%         0.00%         0.00%           Red yucca (Hesperaloe) n=1         100.00%         0.00%         0.00%           Red-hot-poker (Kniphofia uvaria) n=4         75.00%         25.00%         0.00%           Rhubarb (Rheum rhabarbarum) n=4         100.00%         0.00%         0.00%           Rosemary (Rosmarinus officialis) n=3         100.00%         0.00%         0.00%           Rue (Ruta sp.) n=1         100.00%         0.00%         0.00%           Sage (Salvia sp.) n=3         100.00%         0.00%         0.00%           Sea holly (Eryngium agavifolium) n=2         100.00%         0.00%         0.00%           Sea thrift (Armeria sp.) n=1         100.00%         0.00%         0.00%           Shasta daisy (Leucanthemum x superbum) n=4         50.00%         50.00%         0.00%           Silver lace vine (Polygonum         100.00%         0.00%         0.00%		50.00%	50.00%	0.00%
Prickly Pear (Opuntia sp.) n=1         100.00%         0.00%         0.00%           Red yucca (Hesperaloe) n=1         100.00%         0.00%         0.00%           Red-hot-poker (Kniphofia uvaria) n=4         75.00%         25.00%         0.00%           Rhubarb (Rheum rhabarbarum) n=4         100.00%         0.00%         0.00%           Rosemary (Rosmarinus officialis) n=3         100.00%         0.00%         0.00%           Rue (Ruta sp.) n=1         100.00%         0.00%         0.00%           Sage (Salvia sp.) n=3         100.00%         0.00%         0.00%           Sea holly (Eryngium agavifolium) n=2         100.00%         0.00%         0.00%           Sea thrift (Armeria sp.) n=1         100.00%         0.00%         0.00%           Sedum (Sedum) n=2         100.00%         50.00%         0.00%           Shasta daisy (Leucanthemum x superbum) n=4         50.00%         50.00%         0.00%           Silver lace vine (Polygonum         100.00%         0.00%         0.00%		0.00%	100.00%	0.00%
Red yucca (Hesperaloe) n=1         100.00%         0.00%         0.00%           Red-hot-poker (Kniphofia uvaria) n=4         75.00%         25.00%         0.00%           Rhubarb (Rheum rhabarbarum) n=4         100.00%         0.00%         0.00%           Rosemary (Rosmarinus officialis) n=3         100.00%         0.00%         0.00%           Rue (Ruta sp.) n=1         100.00%         0.00%         0.00%           Sage (Salvia sp.) n=3         100.00%         0.00%         0.00%           Sea holly (Eryngium agavifolium) n=2         100.00%         0.00%         0.00%           Sea thrift (Armeria sp.) n=1         100.00%         0.00%         0.00%           Sedum (Sedum) n=2         100.00%         50.00%         0.00%           Shasta daisy (Leucanthemum x superbum) n=4         50.00%         50.00%         0.00%           Silver lace vine (Polygonum         100.00%         0.00%         0.00%	Poppy ( <i>Papaver</i> sp.) n=3	66.67%	0.00%	33.33%
Red-hot-poker (Kniphofia uvaria) n=4         75.00%         25.00%         0.00%           Rhubarb (Rheum rhabarbarum) n=4         100.00%         0.00%         0.00%           Rosemary (Rosmarinus officialis) n=3         100.00%         0.00%         0.00%           Rue (Ruta sp.) n=1         100.00%         0.00%         0.00%           Sage (Salvia sp.) n=3         100.00%         0.00%         0.00%           Sea holly (Eryngium agavifolium) n=2         100.00%         0.00%         0.00%           Sea thrift (Armeria sp.) n=1         100.00%         0.00%         0.00%           Sedum (Sedum) n=2         100.00%         0.00%         0.00%           Shasta daisy (Leucanthemum x superbum) n=4         50.00%         50.00%         0.00%           Silver lace vine (Polygonum         100.00%         0.00%         0.00%	Prickly Pear (Opuntia sp.) n=1	100.00%	0.00%	0.00%
uvaria) n=4         75.00%         25.00%         0.00%           Rhubarb (Rheum rhabarbarum) n=4         100.00%         0.00%         0.00%           Rosemary (Rosmarinus officialis) n=3         100.00%         0.00%         0.00%           Rue (Ruta sp.) n=1         100.00%         0.00%         0.00%           Sage (Salvia sp.) n=3         100.00%         0.00%         0.00%           Sea holly (Eryngium agavifolium) n=2         100.00%         0.00%         0.00%           Sea thrift (Armeria sp.) n=1         100.00%         0.00%         0.00%           Sedum (Sedum) n=2         100.00%         0.00%         0.00%           Shasta daisy (Leucanthemum x superbum) n=4         50.00%         50.00%         0.00%           Silver lace vine (Polygonum         100.00%         0.00%         0.00%	Red yucca (Hesperaloe) n=1	100.00%	0.00%	0.00%
n=4       100.00%       0.00%       0.00%         Rosemary (Rosmarinus officialis) n=3       100.00%       0.00%       0.00%         Rue (Ruta sp.) n=1       100.00%       0.00%       0.00%         Sage (Salvia sp.) n=3       100.00%       0.00%       0.00%         Sea holly (Eryngium agavifolium) n=2       100.00%       0.00%       0.00%         Sea thrift (Armeria sp.) n=1       100.00%       0.00%       0.00%         Sedum (Sedum) n=2       100.00%       0.00%       0.00%         Shasta daisy (Leucanthemum x superbum) n=4       50.00%       50.00%       0.00%         Silver lace vine (Polygonum       100.00%       0.00%       0.00%		75.00%	25.00%	0.00%
officialis) n=3         100.00%         0.00%         0.00%           Rue (Ruta sp.) n=1         100.00%         0.00%         0.00%           Sage (Salvia sp.) n=3         100.00%         0.00%         0.00%           Sea holly (Eryngium agavifolium) n=2         100.00%         0.00%         0.00%           Sea thrift (Armeria sp.) n=1         100.00%         0.00%         0.00%           Sedum (Sedum) n=2         100.00%         0.00%         0.00%           Shasta daisy (Leucanthemum x superbum) n=4         50.00%         50.00%         0.00%           Silver lace vine (Polygonum         100.00%         0.00%         0.00%		100.00%	0.00%	0.00%
Sage (Salvia sp.) n=3       100.00%       0.00%       0.00%         Sea holly (Eryngium agavifolium) n=2       100.00%       0.00%       0.00%         Sea thrift (Armeria sp.) n=1       100.00%       0.00%       0.00%         Sedum (Sedum) n=2       100.00%       0.00%       0.00%         Shasta daisy (Leucanthemum x superbum) n=4       50.00%       50.00%       0.00%         Silver lace vine (Polygonum       100.00%       0.00%       0.00%		100.00%	0.00%	0.00%
Sea holly (Eryngium agavifolium) n=2       100.00%       0.00%       0.00%         Sea thrift (Armeria sp.) n=1       100.00%       0.00%       0.00%         Sedum (Sedum) n=2       100.00%       0.00%       0.00%         Shasta daisy (Leucanthemum x superbum) n=4       50.00%       50.00%       0.00%         Silver lace vine (Polygonum       100.00%       0.00%       0.00%	Rue (Ruta sp.) n=1	100.00%	0.00%	0.00%
agavifolium) n=2       100.00%       0.00%       0.00%         Sea thrift (Armeria sp.) n=1       100.00%       0.00%       0.00%         Sedum (Sedum) n=2       100.00%       0.00%       0.00%         Shasta daisy (Leucanthemum x superbum) n=4       50.00%       50.00%       0.00%         Silver lace vine (Polygonum       100.00%       0.00%       0.00%	Sage (Salvia sp.) n=3	100.00%	0.00%	0.00%
Sedum (Sedum) n=2         100.00%         0.00%         0.00%           Shasta daisy (Leucanthemum x superbum) n=4         50.00%         50.00%         0.00%           Silver lace vine (Polygonum         100.00%         0.00%         0.00%		100.00%	0.00%	0.00%
Shasta daisy ( <i>Leucanthemum x</i> 50.00% 50.00% 0.00%  Silver lace vine ( <i>Polygonum</i> 100.00% 0.00% 0.00%	Sea thrift ( <i>Armeria</i> sp.) n=1	100.00%	0.00%	0.00%
superbum) n=4         30.00%         30.00%         0.00%           Silver lace vine (Polygonum         100.00%         0.00%         0.00%	Sedum (Sedum) n=2	100.00%	0.00%	0.00%
		50.00%	50.00%	0.00%
		100.00%	0.00%	0.00%

Perennial continued	% Probability of Damage		
Plant Name & Number of Data Points	Never to Rearely Damaged %	Sometimes Damaged %	Frequently Severely Damaged %
Snow-in-summer ( <i>Cerastium tomentosum</i> ) n=3	100.00%	0.00%	0.00%
Society garlic ( <i>Tulbaghia</i> fragrens) n=1	100.00%	0.00%	0.00%
Spearmint (Mentha spicata) n=1	100.00%	0.00%	0.00%
Speedwell, Veronica ( <i>Veronica</i> sp.) n=1	100.00%	0.00%	0.00%
Spiderwort ( <i>Tradescantia</i> sp.) n=1	0.00%	0.00%	100.00%
Spurge ( <i>Euphorbia</i> sp. Except <i>Chameleon</i> ) n=2	100.00%	0.00%	0.00%
Statice ( <i>Limonium latifolium</i> ) n=1	100.00%	0.00%	0.00%
Strawberry (Fragraria sp.) n=2	100.00%	0.00%	0.00%
Tansy, common ( <i>Tanacetum</i> vulgare) n=2	100.00%	0.00%	0.00%
Tarragon ( <i>Artemisia</i> dracunculus) n=1	100.00%	0.00%	0.00%
Thyme ( <i>Thymus</i> sp.) n=4	100.00%	0.00%	0.00%
Tickseed (Coreopsis sp.) n=3	66.67%	33.33%	0.00%
Virginia creeper ( <i>Parthenocissus</i> sp.) n=2	100.00%	0.00%	0.00%
Watson's Dutchman's Pipe (Aristolochia watsonii) n=1	0.00%	0.00%	100.00%
Wine-cup ( <i>Callirhoe involucrata</i> ) n=3	100.00%	0.00%	0.00%
Wisteria (Wisteria sp.) n=1	100.00%	0.00%	0.00%
Yarrow (Achillea sp.) n=4	100.00%	0.00%	0.00%
Yucca (Yucca) n=3	33.33%	66.67%	0.00%

Shrub	% Probability of Damage		
Plant Name & Number of Data Points	Never to Rearely Damaged %	Sometimes Damaged %	Frequently Severely Damaged %
3-leaf sumac ( <i>Rhus trilobata</i> ) n=2	100.00%	0.00%	0.00%
Apache Plume (Fallugia) n=4	100.00%	0.00%	0.00%
Autumn sage ( <i>Salvia greggii</i> ) n=2	100.00%	0.00%	0.00%
Barberry ( <i>Berberis</i> sp.) n=2	100.00%	0.00%	0.00%
Blue Mist Spirea (Caryopteris clandonensis) n=2	100.00%	0.00%	0.00%
Boxwood (Buxus sp.) n=1	100.00%	0.00%	0.00%
Broom ( <i>Cytisus</i> sp.) n=1	100.00%	0.00%	0.00%
Buckthorn (Rhammus sp.) n=1	100.00%	0.00%	0.00%
Butterfly Bush ( <i>Buddleia</i> sp.) n=2	50.00%	50.00%	0.00%
Choke cherry ( <i>Prunus</i> virginiana) n=3	33.33%	33.33%	33.33%
Cinquefoil (Potentilla sp.) n=1	100.00%	0.00%	0.00%
Cotoneaster ( <i>Cotoneaster</i> sp.) n=3	66.67%	33.33%	0.00%
Daphne ( <i>Daphne</i> sp.) n=2	50.00%	50.00%	0.00%

Shrub continued	% Probability of Damage		
Plant Name & Number of Data Points	Never to Rearely Damaged %	Sometimes Damaged %	Frequently Severely Damaged %
Deerbrush ( <i>Ceanothus</i> sp.) n=1	0.00%	0.00%	100.00%
Elderberry (Sambucus sp.) n=1	100.00%	0.00%	0.00%
Firethorn ( <i>Pyracantha</i> sp.) n=1	100.00%	0.00%	0.00%
Forsythia (Forsythia) n=3	0.00%	100.00%	0.00%
Heath (Erica sp.) n=1	100.00%	0.00%	0.00%
Heather (Calliuna sp.) n=1	100.00%	0.00%	0.00%
Holly ( <i>llex</i> sp.) n=4	100.00%	0.00%	0.00%
Juniper (Juniperus sp.) n=6	66.67%	16.67%	16.67%
Lilac (Syringa sp.) n=1	100.00%	0.00%	0.00%
Manzanita ( <i>Archostaphylos</i> sp.) n=2	100.00%	0.00%	0.00%
Mock orange ( <i>Philadelphus</i> sp.) n=1	100.00%	0.00%	0.00%
Mouintain mahogany (Cercocarpus sp.) n=2	50.00%	50.00%	0.00%
Mugo pine ( <i>Pinus mugo</i> ) n=3	100.00%	0.00%	0.00%
Oakleaf hydrangea ( <i>Hydrangea quercifolia</i> ) n=1	0.00%	0.00%	100.00%
Oregon Grape ( <i>Mahonia</i> sp.) n=3	100.00%	0.00%	0.00%
Photinia ( <i>Photinia</i> ) n=1	100.00%	0.00%	0.00%
Purple leaf plum ( <i>Prunus</i> sp.) n=1	100.00%	0.00%	0.00%
Rabbit brush ( <i>Chrysothamnus</i> sp.) n=3	100.00%	0.00%	0.00%
Red chokeberry (Aronia arbutifolia) n=1	0.00%	100.00%	0.00%
Roses (Rosa sp.) n=1	0.00%	100.00%	0.00%
Russian sage ( <i>Perovskia</i> ) n=5	100.00%	0.00%	0.00%
Saltbush (Atriplex) n=2	100.00%	0.00%	0.00%
Serviceberrry ( <i>Amelancier</i> sp.) n=1	100.00%	0.00%	0.00%
Shrub live oak ( <i>Quercus</i> turbinella) n=1	100.00%	0.00%	0.00%
Snowberry (Symphoricarpos albus) n=1	100.00%	0.00%	0.00%
Spirea (Spiraea sp.) n=1	100.00%	0.00%	0.00%
Viburnum (Viburnum sp.) n=1	100.00%	0.00%	0.00%
Wormwood (Artemesia sp.) n=1	100.00%	0.00%	0.00%
Yew (Taxus sp.) n=2	100.00%	0.00%	0.00%

Tree	% Probability of Damage		
Plant Name & Number of Data Points	Never to Rearely Damaged %	Sometimes Damaged %	Frequently Severely Damaged %
American Holly ( <i>Ilex opaca</i> ) n=2	100.00%	0.00%	0.00%
Apple, Crabapple ( <i>Malus</i> sp.) n=1	100.00%	0.00%	0.00%
Arborvitae (Thuja occidentalis) n=1	100.00%	0.00%	0.00%
Ash (Fraxinus sp.) n=2	100.00%	0.00%	0.00%

Tree continued	% Probability of Damage		
Plant Name & Number of Data Points	Never to Rearely Damaged %	Sometimes Damaged %	Frequently Severely Damaged %
Aspen, Quaking ( <i>Populus</i> tremuloides) n=1	0.00%	0.00%	100.00%
Austrian pine (Pinus nigra) n=1	0.00%	100.00%	0.00%
AZ cypress ( <i>Cupressus</i> arizonica) n=2	100.00%	0.00%	0.00%
Birch (Betula sp.) n=3	66.67%	0.00%	33.33%
Cedar (Cedrus sp.) n=2	100.00%	0.00%	0.00%
Chaste Tree (Vitex) n=1	100.00%	0.00%	0.00%
Cherry ( <i>Prunus</i> sp.) n=2	100.00%	0.00%	0.00%
Citrus (Various) n=1	100.00%	0.00%	0.00%
Colorado Blue Spruce ( <i>Picea pungens</i> ) n=1	100.00%	0.00%	0.00%
Cottonwood (Populus sp.) n=1	0.00%	100.00%	0.00%
Cypress (Cupressus sp.) n=2	100.00%	0.00%	0.00%
Fig (Fig) n=2	100.00%	0.00%	0.00%
Fir (Abies sp.) n=2	100.00%	0.00%	0.00%
Flowering Quince (Chaenomeles sp.) n=1	100.00%	0.00%	0.00%
Fruit (apples, pears, peaches) (Various) n=3	100.00%	0.00%	0.00%
Goldenrain tree (Koelreuteria paniculata) n=1	100.00%	0.00%	0.00%
Hackberry (Celtis sp.) n=3	100.00%	0.00%	0.00%
Hawthorn (Crataegus sp.) n=3	100.00%	0.00%	0.00%
Honey Locust ( <i>Gleditsia</i> triacanthos) n=2	100.00%	0.00%	0.00%
Honey Mesquite beans/pods ( <i>Prosopis glandulosa</i> ) n=2	50.00%	50.00%	0.00%
Italian cypress ( <i>Cupressus</i> sempervirens) n=1	100.00%	0.00%	0.00%
Jojoba (Simmondsia chinensis) n=1	100.00%	0.00%	0.00%
Leyland cypress (Cupressus x leylandii) n=1	100.00%	0.00%	0.00%
Locust trees (Robinia sp.) n=2	100.00%	0.00%	0.00%
Magnolia ( <i>Magnolia</i> sp.) n=1	100.00%	0.00%	0.00%
Maidenhair tree ( <i>Gingko biloba</i> ) n=3	33.33%	0.00%	66.67%
Maple trees (Acer sp.) n=5	60.00%	20.00%	20.00%
Mimosa ( <i>Albizia</i> sp.) n=1	100.00%	0.00%	0.00%
Oak, including acorns ( <i>Quercus</i> sp.) n=2	0.00%	100.00%	0.00%
Palo Verde ( <i>Parkinsonia</i> aculeata) n=1	100.00%	0.00%	0.00%
Pine (Pinus sp.) n=8	62.50%	25.00%	12.50%
Pinion nuts (Pinion) n=1	0.00%	0.00%	100.00%
Plums ( <i>Prunus</i> sp.) n=2	50.00%	50.00%	0.00%
Purple leaf sand cherry ( <i>Prunus x cistena</i> ) n=2	100.00%	0.00%	0.00%
Redbud ( <i>Cercis</i> sp.) n=1	100.00%	0.00%	0.00%
Spruce ( <i>Picea</i> sp.) n=3	33.33%	66.67%	0.00%
Sweetgum ( <i>Liquidambar</i> styraciflua) n=1	100.00%	0.00%	0.00%

Tree continued	% Probability of Damage		
Plant Name & Number of Data Points	Never to Rearely Damaged %	Sometimes Damaged %	Frequently Severely Damaged %
Texas mountain laurel (Sophora secuniflora) n=1	100.00%	0.00%	0.00%
Tulip tree ( <i>Liriodendron</i> tulipifera) n=1	100.00%	0.00%	0.00%
Walnut ( <i>Juglans nigra</i> ) n=2	100.00%	0.00%	0.00%
Willow (Salix sp.) n=1	0.00%	100.00%	0.00%

## **Sources**

Yavapai, Payson, & Flagstaff Master Gardeners. (2025). Responses to Qualtrics survey on deer-resistant plants [Unpublished raw data]. University of Arizona Cooperative Extension.

Evergreen Landscapes and Supply. (2018). Plantings for elk and deer. Shamrock Pines HOA. <a href="https://shamrockpineshoa.com/wp-content/uploads/2018/07/Plantings-for-Elk-and-Deer.pdf">https://shamrockpineshoa.com/wp-content/uploads/2018/07/Plantings-for-Elk-and-Deer.pdf</a>

Utah State University Extension. (n.d.). Elk nutrition and home range: Diets, competition with livestock, home range studies. Rangelands Extension. Utah State University. Retrieved [Month Day, Year], from <a href="https://extension.usu.edu/rangelands/research/elk-nutrition-and-home-range">https://extension.usu.edu/rangelands/research/elk-nutrition-and-home-range</a>

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