Supplementary Table S1. Documented Uses and Applications of the 17 *Lupinus* Species Reviewed in this Study.

Species	Primary Use/s	Reference
L. albus	Human consumption (high protein), forage, green manure and Australian weeds	[1,2]
L. angustifolius	Human nutrition, animal feed (Australian feedstock), rotation crop and Australian weeds	[1,3,4]
L. arboreus	Ecological (highly invasive species), soil amendment, and stabilization (fast growth, high N-fixing capacity)	[5]
L. arcticus	Research (seed germination studies of 10,000-year-old seeds) and ecological role (insects and squirrels depend on it)	[6]
L. argenteus	Forage and ecological restoration (native to North American prairies; N-fixation in poor and high-elevation soils)	[7]
L. bakeri	Ecological (limited information available; native to North America)	[8]
L. elegans	Ornamental (showy colors) and ecological restoration	[9,10]
L. hispanicus	Forage potential assessment (green mass/grain) under Mediterranean winter conditions and food (high protein content)	[11,12]
L. luteus	Human consumption, animal feed (primarily seeds), N-fixation and Australian weeds	[1,13]
L. mutabilis	Food (high nutritional value) and cold resistance	[14,15]
L. nanus	Ornamental (rock gardens) and cover crop	[16]
L. nipomensis	Conservation (endangered/endemic to California)	[17]
L. perennis	Ecological (host plant for three endangered butterfly species)	[18]
L. pilosus	Agronomic potential	[19]
L. polyphyllus	Ornamental and invasive species	[1,20]
L. sulphureus	Ecological restoration (tolerance to dry and poor soils) and agronomic potential	[21]
L. texensis	Source of antioxidant flavonoids and nitrogen-fixing cover crop	[22,23]

Supplementary Table S2. Pollination Systems in Lupinus Species.

Species	Pollination System	Additional Information	Reference
L. albus	Primarily autogamous / Tripping with pollinators	Mostly pollinated by bees. Self-fertile. Bees exert sufficient pressure to activate flowers and release pollen	[24]
L. angustifolius	Tripping / Capable of self-pollination	Mostly pollinated by bees	[24]
L. arboreus	Tripping	Mostly pollinated by bees. Slightly autogamous	[5,25]
L. argenteus	Tripping	Mostly pollinated by bumblebees	[26]
L. luteus	Tripping / Autogamous	Mostly pollinated by bees. Strong self-fertility trait	[24]
L. mutabilis	Tripping	Mostly by bees	[24]
L. nanus	Tripping / Autogamous	Capable of self-pollination, but limited by bee pollination	[16]
L. pilosus	Tripping	Primarily self-pollinated, with limited bee pollination	[27]

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