

Fabaceae or Leguminosae

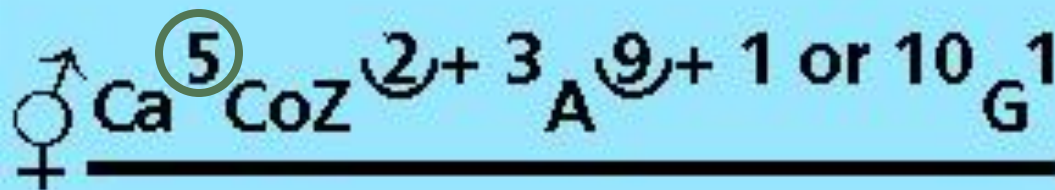
Pea Family

Fabaceae

- Flowers bisexual
- Generally bilaterally symmetrical
- Sepals 5, fused
- Petals 5, free or lower 2 fused
- Stamens 10, free or fused, or 9 fused + 1 free
- 1 style, 1 stigma
- Ovary superior, 1 chamber
- Fruit a legume; 1- many seeds

Papilionoideae Floral Formula

**FABOIDEAE or Papilionoideae
(Bean or Pea Subfamily)**



Fabaceae

- Most genera form a symbiotic association with a nitrogen-fixing bacteria, rhizobia, that lives in root nodules.
- Rhizobia convert atmospheric N to ammonia (= N fixation) which is then used by the plant.
- Green manures take advantage of this to enrich garden soil with nitrogen

Fabaceae

- Nitrogen compounds are required by all life on Earth.
- N is essential to DNA and proteins (including enzymes).
- The nitrogen cycle - the fixation of N and movement of nitrogen compounds - is an essential ecosystem property.

Three Subfamilies of Fabaceae

● Mimosoideae

- Mesquite (*Prosopis*), *Acacia*, *Albizia*,
- No native species in El Do Co



Acasia



Three Subfamilies of Fabaceae

● Caesalpinioideae

- Only one native species in El Do Co – Redbud *Cercis occidentalis*

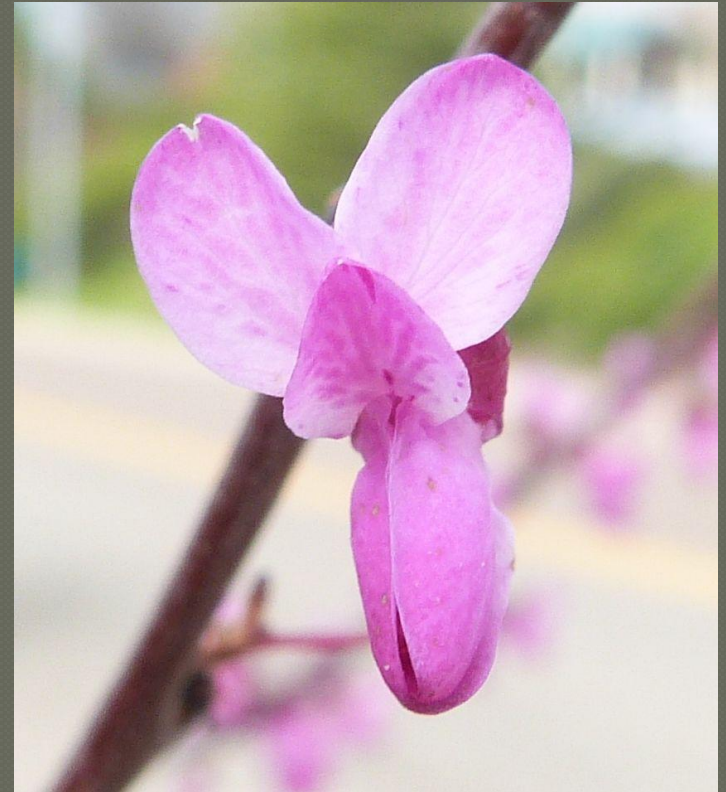


Cercis occidentalis

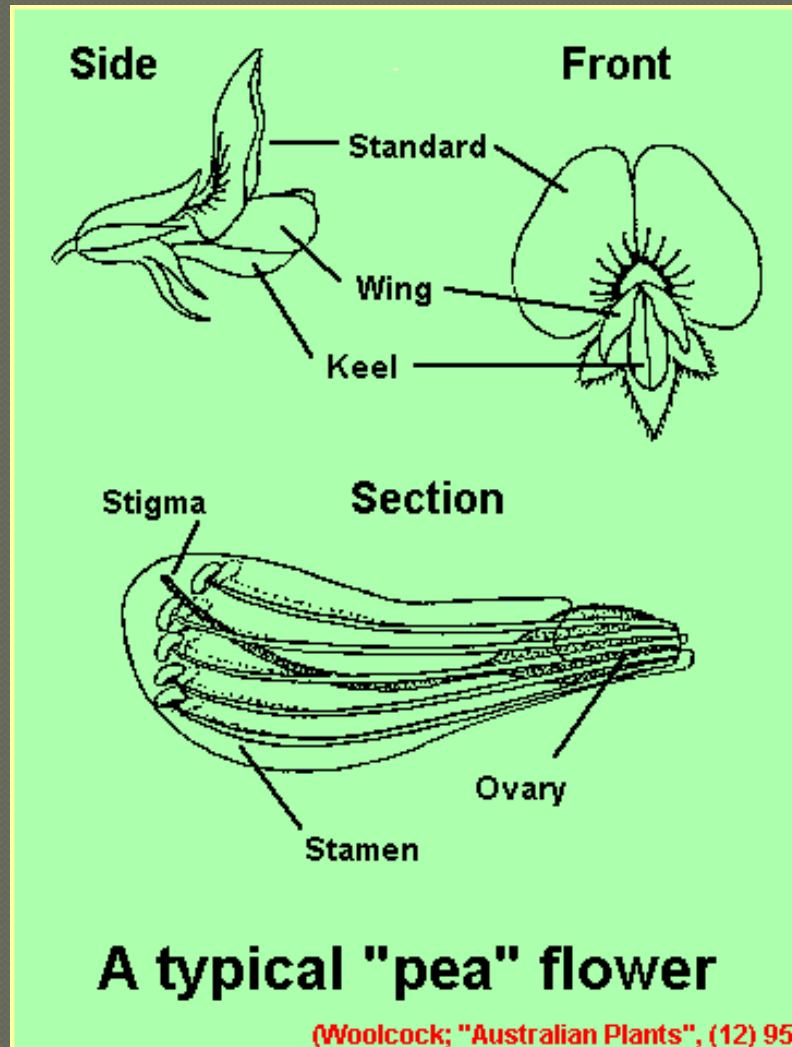


Three Subfamilies of Fabaceae

● Papilionoideae vs *Cercis*



Papilionoideae



Fabaceae in ElDoCo

- 122 native species

- 114 herbs
- 8 trees and shrubs

- 43 non-native species, some
invasive

- Brooms, clovers, peas, sweet-clovers,
vetches

Invasive legumes

- ① Alter the nitrogen cycle – can be “transformers”:
- ② “Invasive species that change the character, condition, form or nature of a natural ecosystem over a substantial area. These species are considered significant ecological threats” (DiTomaso).

Invasive legumes



Fabaceae in ElDoCo

- 122 native species
 - 114 herbs
 - 8 trees and shrubs

Lupines (40 *Lupinus sp.*)



Palmately compound leaflets 5–9
Filaments of all stamens fused



Keel

Banner



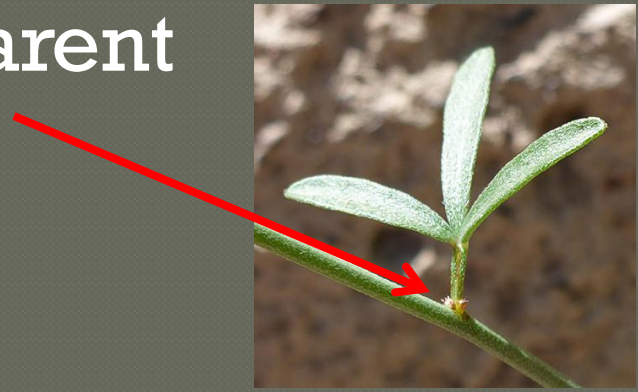
Clover (30 *Trifolium* sp.)

Pinnately compound leaflets mostly 3
Filaments of 9 stamens fused + 1



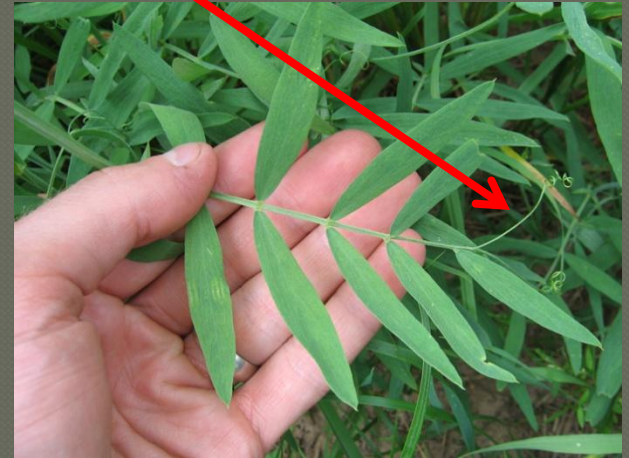
Lotus (18 *Acmispon* sp.)

Odd pinnately compound leaflets => 3
Umbel, stipules often not apparent



Pea (10 *Lathyrus sp.*)

Even pinnate ending in a tendril, 2 or more
Style \pm flat, leaflets \pm rolled in bud





Invasive legumes

- Yellow Bush Lupine
- Native south of Bodega Bay
- Introduced northward to stabilize dunes
- = overstabilized dunes
- Promotes exotic grasses through N



Plant Families

Families generally named after the typical genus except there are some older family names that are still accepted

Leguminosae = Fabaceae = Pea Family

Fruit is a legume (pea pod) (oddly enough, the “bean” genus *Faba* is now *Vicia*)

Compositae = Asteraceae = Daisy

The inflorescence looks like a single flower but is a composite of many small flowers

Plant Families

Cruciferae = Brassicaceae = Mustard

Flowers have 4 petals in shape of a cross

Gramineae = Poaceae = Grasses

Umbelliferae = Apiaceae = Carrot

Inflorescence is an umbel (like an umbrella)

Native legumes in ElDoCo

<i>Genus</i>	Common name	# species
HERBS		114 species
<i>Acmispon</i>	formerly Lotus	18 species
<i>Astragalus</i>	milk vetch	5 species
<i>Hosackia</i>	some formerly Lotus	8 species
<i>Lathyrus</i>	pea	9 species
<i>Lupinus</i>	lupines	40 species
<i>Trifolium</i>	clover	30 species
<i>Vicia</i>	vetch	2 species

Native legumes in ElDoCo

TREES AND SHRUBS		8 species
<i>Amorpha</i>	False indigo shrub	2 species
<i>Cercis</i>	Redbud shrub/tree	1 species
<i>Lupinus</i>	Bush lupine	4 species
<i>Pickeringia</i>	Montana chaparral pea	1 species