



***TRIFOLIUMS***

***OF***

***SAN MATEO***

***&***

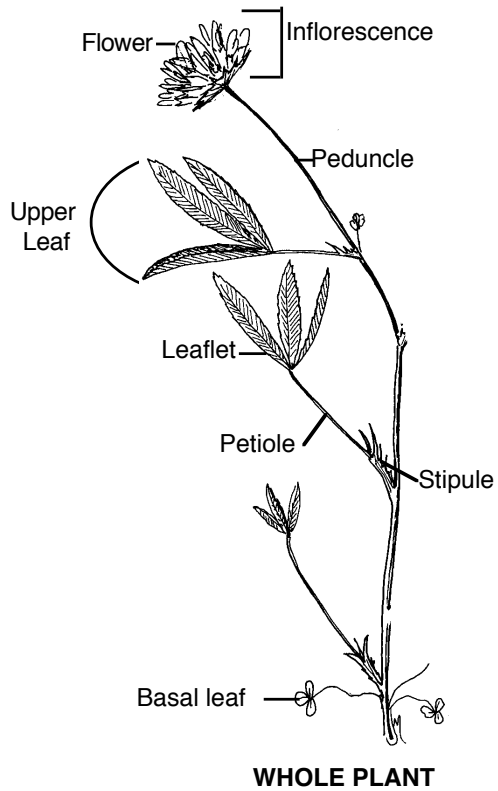
***SANTA CLARA***

***COUNTY***

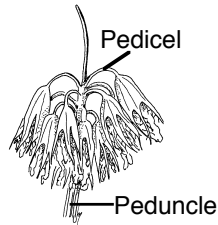
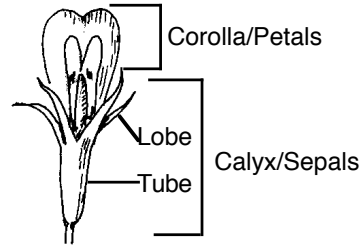
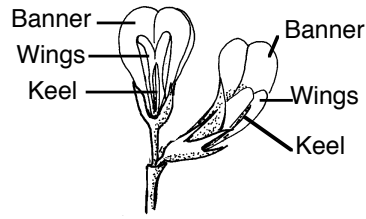
***BY***

***TONI CORELLI***

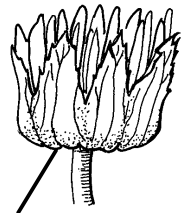
***APRIL 2010***



**WHOLE PLANT**



**FLOWERS**



Cup Shaped



Flat or V Shaped



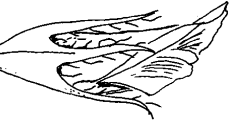
Without an Involucre

**INVOLUCRES**

**INSIDE**



With Hairs

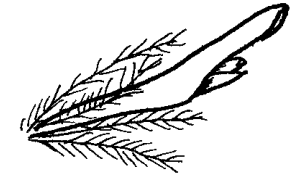


With Bristles

**SEPALS**

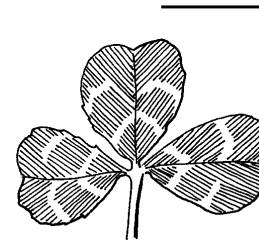


Inflated

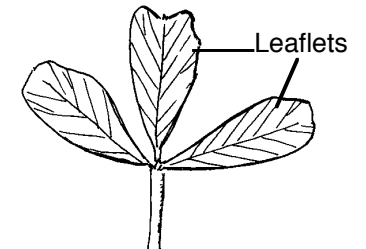


Not Inflated

**COROLLA**



With Chevrons



Without Chevrons

**LEAVES**

**BACK**

## INTRODUCTION

Clovers in the genus *Trifolium* are in the Fabaceae family. A new key and descriptions has been prepared for The Jepson Manual, 2nd Edition by Michael A. Vincent. If there is a name change the new name is used and the synonym is in parentheses. It can be found online at The Jepson Online Interchange at:

[http://ucjeps.berkeley.edu/tjm2/review/treatments/fabaceae\\_all.html#47029](http://ucjeps.berkeley.edu/tjm2/review/treatments/fabaceae_all.html#47029)

Trifoliums are a large genus including of 80 taxa (species including subspecies and varieties) in California. San Mateo and Santa Clara County have 35 taxa; 23 native and 12 non-native.

Trifoliums have a typical “pea flower” consisting of 5 fused sepals; five petals consisting of a banner, 2 wings and a keel (2 fused petals); stamens 10 with 9 filaments fused, 1 free; ovary superior; pistil 1, stigma, style 1; fruit short and plump with 1-6 seeds. Trifoliums have 3 leaflets.

Illustrations by Judy Mason unless other wise noted; photographs by Toni Corelli unless otherwise noted.

KEYING HINT - when measuring, measure at least 3 structures (e.g. sepal length, measure three different sepals)

Measurements indicate length unless otherwise noted

Flower size - measure sepals and petals together to get this length

Involucre size - measure from peduncle to edge of involucre unless otherwise noted

> greater than

< less than

\* - indicates non-native plants

SM=San Mateo County

SC=Santa Clara County

cm = centimeter

mm = millimeter

var. = variety

calyx = collective term for sepals

corolla = collective term for petals

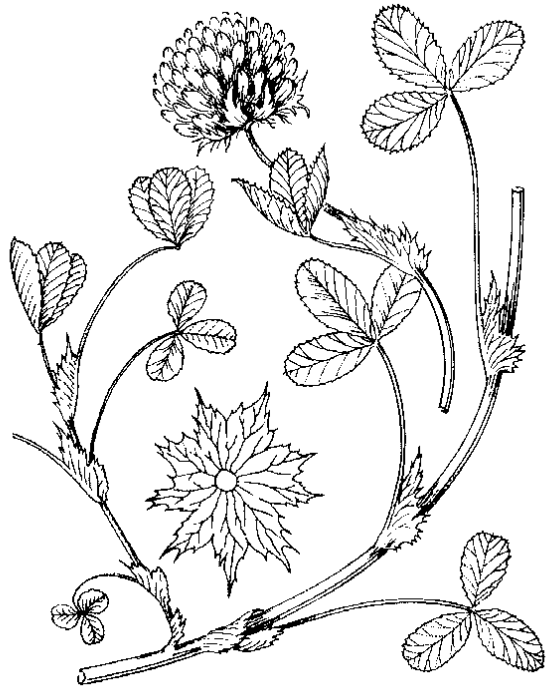
glabrous = without hairs

plumose = very hairy sometimes branched hairy

stipule = structure at the base of the leaf

Send comments to - Toni Corelli - [corelli@coastside.net](mailto:corelli@coastside.net)

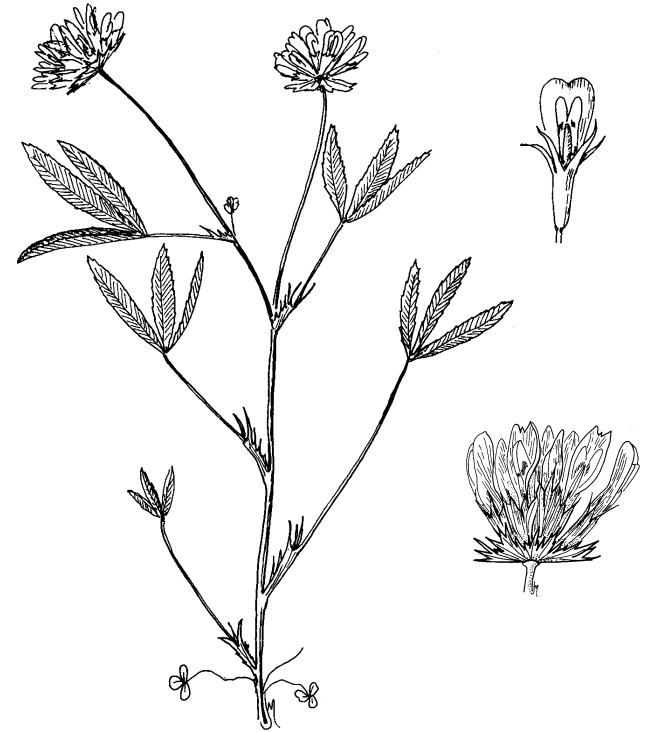
Scientific Name - Common Name	
Trifolium albopurpureum (T. a. var. albopurpureum & T. a. dichotomum) - common Indian clover (pg. 10)	SC, SM
Trifolium amoenum - showy Indian clover (pg. 11)	SM
Trifolium angustifolium* - narrow-leaved clover* (pg. 12)	SC, SM
Trifolium arvense* - rabbitfoot clover* (pg. 13)	SM
Trifolium barbigerum var. barbigerum - bearded clover (pg. 14)	SC, SM
Trifolium bifidum var. bifidum - notch-leaved clover (pg. 15)	SC, SM
Trifolium bifidum var. decipiens - deceptive clover (pg. 16)	SC, SM
Trifolium campestre* - hop clover* (pg. 17)	SC, SM
Trifolium ciliolatum - tree clover (pg. 18)	SC, SM
Trifolium depauperatum var. amplectens - fusedbract pale sack clover (pg. 19)	SC, SM
Trifolium depauperatum var. depauperatum - dwarf sack clover (pg. 20)	SC, SM
Trifolium depauperatum var. truncatum - common pale sack clover (pg. 21)	SC, SM
Trifolium dichotomum (T. albopurpureum var. dichotomum) - branched Indian clover (pg. 22)	SC, SM
Trifolium dubium* - little hop clover* (pg. 23)	SC, SM
Trifolium fragiferum* strawberry clover* (pg. 24)	SM
Trifolium fucatum - sour clover (pg. 25)	SC, SM
Trifolium glomeratum* - little rose clover* (pg. 26)	SC, SM



Trifolium wormskioldii  
cow clover

Scientific Name - Common Name	
Trifolium gracilentum var. gracilentum - pin-point clover) (pg. 27)	SC, SM
Trifolium grayi (barbigerum var. andrewsii) - Gray's clover (pg. 28)	SM
Trifolium hirtum* - rose clover* (pg. 29)	SC, SM
Trifolium incarnatum* crimson clover* (pg. 30)	SC, SM
Trifolium macraei - Macrae's clover (pg. 31)	SC, SM
Trifolium microcephalum - small-headed clover (pg. 32)	SC, SM
Trifolium microdon - Valparaiso clover (pg. 33)	SC, SM
Trifolium obtusiflorum - clammy clover (pg. 34)	SC
Trifolium oliganthum - few-flowered clover (pg. 35)	SC, SM
Trifolium olivaceum (T. albopurpureum var. olivaceum) - olive clover (pg. 36)	SC
Trifolium pratense* - red clover* (pg. 37)	SC, SM
Trifolium repens* - white clover* (pg. 38)	SC, SM
Trifolium subterraneum* - subterranean clover* (pg. 39)	SC, SM
Trifolium tomentosum* - woolly clover* (pg. 40)	SM
Trifolium variegatum var. major (T. variegatum) - large variegated clover (pg. 41)	SC, SM
Trifolium variegatum var. variegatum (T. variegatum) - white-tipped clover/variegated clover (pg. 41)	SC, SM
Trifolium willdenovii - tomcat clover (pg. 42)	SC, SM
Trifolium wormskioldii - cow clover (pg. 43)	SC, SM

1. Flowers white, cream, or yellow
  2. Flowers bright yellow
    4. Inflorescence with > 15 flowers.....**Trifolium campestre\***  
**(hop clover\*)**
    - 4' Inflorescence with < 15 flowers.....**Trifolium dubium\***  
**(little hop clover\*)**
  - 2' Flowers white to cream
    5. Inflorescence subtended by an involucre bracts
      6. Corolla 4-8 mm.....**Trifolium depauperatum var. amplexans (fusedbract pale sack clover)**
      - 6' Corolla 10-20 mm.....**Trifolium fucatum (sour clover)**
    - 5' Inflorescence not subtended by involucre bracts
      7. Corolla with < 8 flowers; calyx with long bristly hairs, may have some red at base; inflorescence elongating, and forming bur that gets buried in the ground.....  
**Trifolium subterraneum\* (subterranean clover\*)**
      - 7' Corolla with > 8 flowers; inflorescence not as above.....  
**Trifolium repens\* (white clover\*) (2)**
- 1' Flowers pink to red (maybe some white on the flower)
  8. Inflorescence subtended by an involucre bract
    9. Calyx, corolla becoming inflated
      10. Calyx hairy or bristly
        11. Plant creeping and rooting along the ground.....  
**Trifolium fragiferum\* (strawberry clover\*)**
        - 11' Plant erect not creeping.....**Trifolium barbigerum var. barbigerum (bearded clover - involucre hairy) (2)**



*Trifolium willdenovii*  
tomcat clover



Kathy Korbholz

*Trifolium variegatum* var. *variegatum* &  
*T. variegatum* var. *major*  
 white-tipped clover/variegated clover

10' Calyx glabrous.....***Trifolium depauperatum* var. *truncatum***  
**(common pale sack clover)**

9' Calyx, corolla not inflated

12. Involucre bracts cup, bowl shaped

13. Involucre bracts hairy

14. Involucre individual lobes 1 x toothed (see illustration pg. 32); plant finely hairy.....***Trifolium microcephalum***  
**(small-headed clover)**

14' Involucre individual lobes toothed or cut more than once (see illustration pg. 28); plant hairs 0 or soft hairy

15. Corolla 3-6 mm, inflorescence generally bristly from calyx lobes.....***Trifolium barbigerum* var. *barbigerum***  
**(bearded clover) (2)**

15' Corolla 6-16 mm, > calyx; inflorescence not bristly (maybe finely hairy).....***Trifolium grayi* (*barbigerum* var. *andrewsii*) (Gray's clover)**

13' Involucre bracts glabrous (maybe a few hairs).....  
***Trifolium microdon* (Valparaiso clover)**

12' Involucre bracts flat ring or slightly v shaped at base

16. Plant perennial; involucre 2-3 cm wide.....***Trifolium wormskioldii* (cow clover)**

16' Plant annual; involucre < 2 cm wide

17. Calyx lobes < tube, often toothed; calyx tube splitting between upper lobes

18. Fl 5-8 mm; involucre 2-3 mm, generally cut > 1/2 to base; 5-15 flowered; lvs usually linear.....  
***Trifolium oliganthum* (few-flowered clover)**

18' Fl 9-18 mm; involucre > 3 mm, cut < 1/2 to base, often > 15 flowered

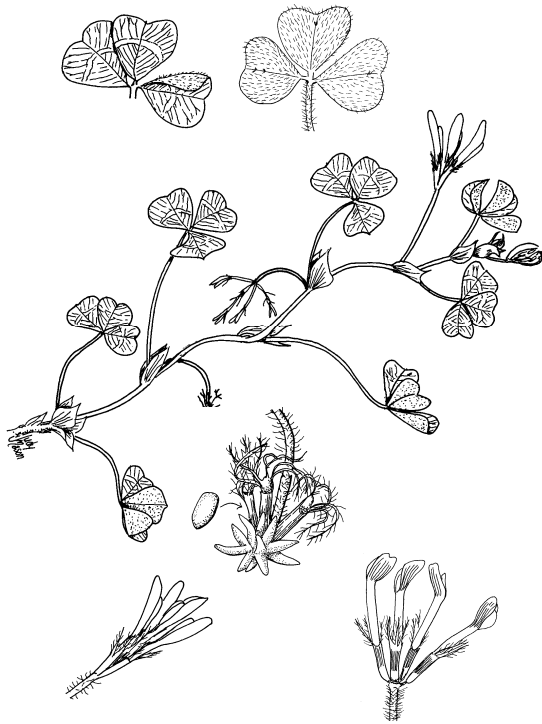
- 19. Calyx glandular-hairy or bumpy, lobes generally entire; leaflets sharp-serrate, longer teeth +/- 1 mm.....  
**Trifolium obtusiflorum (clammy clover)**
- 19' Calyx glabrous, not bumpy, lobes entire or 3-toothed; leaflets serrate, teeth < 1 mm.....**Trifolium willdenovii (tomcat clover)**
- 17' Calyx lobes > tube, generally entire, calyx tube not splitting between upper lobes
  - 20. Inflorescence 1.5-3 cm, 10-many-flowered, corolla 9-17 mm.....**Trifolium variegatum var. major (T. variegatum) (large variegated clover)**
  - 20' Inflorescence 1-1.5 cm, 5-10 flowered, corolla 6-10 mm.....  
**Trifolium variegatum var. variegatum (T. variegatum) (white-tipped clover/variegated clover)**
- 8' Inflorescence not subtended by an involucre bract (can be subtended by uppermost leaves and stipule)
  - 21. Corolla, calyx becoming inflated
    - 22. Plant hairy.....**Trifolium tomentosum\* (wooly clover\*)**
    - 22' Plant glabrous.....**Trifolium depauperatum var. depauperatum dwarf sack clover**
  - 21' Corolla, calyx not becoming inflated
    - 23. Flowers becoming reflexed; pedicels often > 2 mm
      - 24. Stem creeping, rooting, turf-forming.....**Trifolium repens\* (white clover\*) (2)**
      - 24' Plant not creeping
        - 25. Calyx lobes ciliate with short, flat bristles (otherwise plant without hairs); leaf not notched.....  
**Trifolium ciliolatum (tree clover)**



Avis Boutell

Trifolium tomentosum\*  
wooly clover\*





*Trifolium subterraneum*\*  
subterranean clover\*

25' Calyx lobes not ciliate or with a few long soft hairs; leaf usually notched

26. Calyx glabrous, lobes +/- 0.5 mm wide at base, tube 1-5-2.5 mm; peduncle not hairy.....***Trifolium gracilentum* var. *gracilentum* (pin-point clover)**

26' Calyx usually with a few long soft hairs, lobes +/- 0.2 mm wide at base, tube 0.8-1.4 mm; leaves usually notched, peduncle usually slightly hairy

27. Leaflet 2.5-5.5 x longer than wide, notched at tip > 0.2 x length....  
***Trifolium bifidum* var. *bifidum* (notch-leaved clover)**

27' Leaflet 1.5-2.5 x longer than wide, not notched or notched < 0.2 x length.....***Trifolium bifidum* var. *decipiens* (deceptive clover)**

23' Flowers not becoming reflexed; pedicels < 2 mm

28. Inflorescence elongate

29. Corolla < calyx; calyx plumose.....***Trifolium arvense*\* (rabbitfoot clover\*)**

29' Corolla > calyx plumose or not

30. Corolla crimson.....***Trifolium incarnatum*\* (crimson clover\*)**

30' Corolla pink.....***Trifolium angustifolium*\* (narrow-leaved clover\*)**

28' Inflorescence head-like

31. Inflorescence +/- sessile or immediately above 1-2 leaves and stipules

32. Inflorescence two-headed.....***Trifolium macraei* (Macrae's clover)**

32' Inflorescence not two-headed

33. Inflorescence glabrous.....***Trifolium glomeratum*\* (little rose clover\*)**

33' Inflorescence hairy

34. Calyx 4.5-7.5 mm, lobes  $\geq$  tube, bristle-like.....

**Trifolium pratense\* red clover\***

34' Calyx 7-9 mm; lobes  $\gg$  tube, densely plumose.....

**Trifolium hirtum\* (rose clover\*)**

31' Inflorescence not sessile but on an elongated peduncle

35. Corolla  $\leq$  calyx; corolla 2-colored

36. Calyx 4-8 mm, lobes 3-6.5 mm.....

**Trifolium albopurpureum (T. a. var. albopurpureum & T. a. var. dichotomum) (common Indian clover)**

36' Calyx 8-14 mm, lobes 6.5-12 mm.....

**Trifolium olivaceum (T. albopurpureum var. olivaceum) (olive clover)**

35' Corolla  $>$  calyx; corolla 2-colored

37. Corolla 12-16 mm; calyx 10-12 mm.....

**Trifolium amoenum (showy Indian clover)**

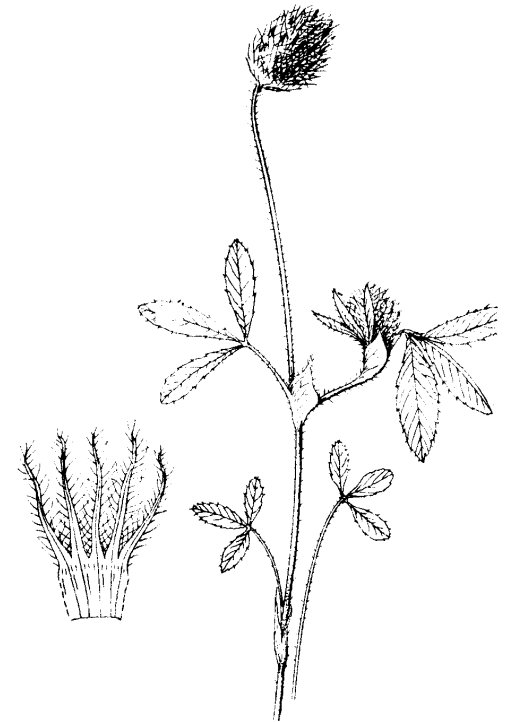
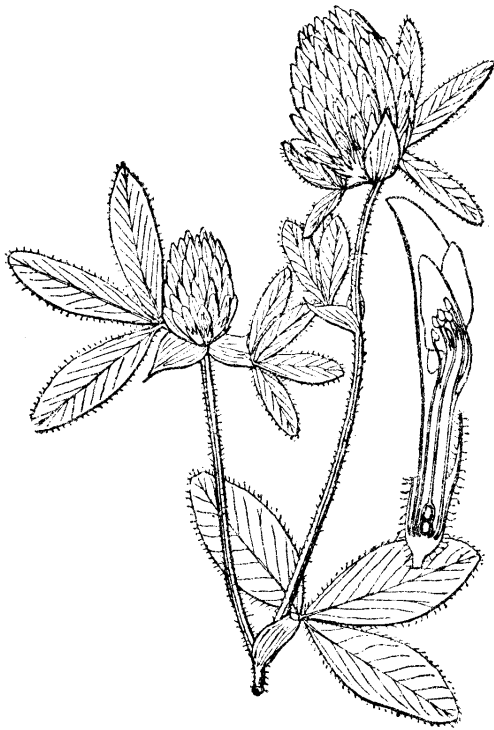
37' Corolla 7-12 mm; calyx 4-8 mm.....

**Trifolium dichotomum (T. albopurpureum var. dichotomum)**

**(branched Indian clover)**



**Trifolium repens\* white clover\***



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*Trifolium pratense*\*  
red clover\*

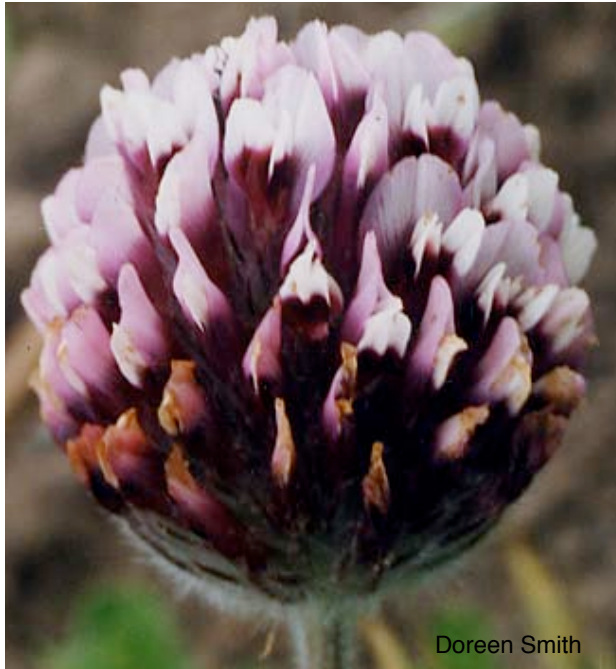
37



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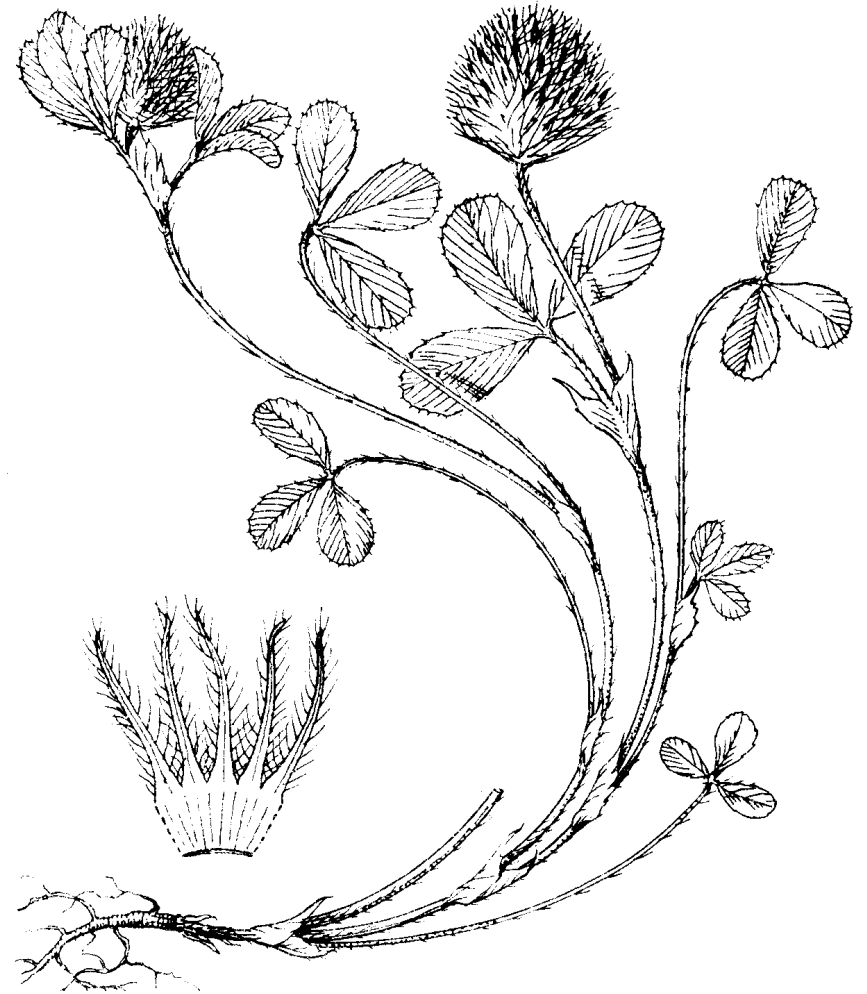
*Trifolium albobpurpureum* (T. a. var.  
*albobpurpureum* & T. a. var. *dichotomum*)  
common Indian clover

10



Doreen Smith

*Trifolium amoenum*  
showy Indian clover



*Trifolium olivaceum*  
(*T. alborpurpureum* var. *olivaceum*)  
olive clover



Carol W. Witham

*Trifolium oliganthum*  
few-flowered clover



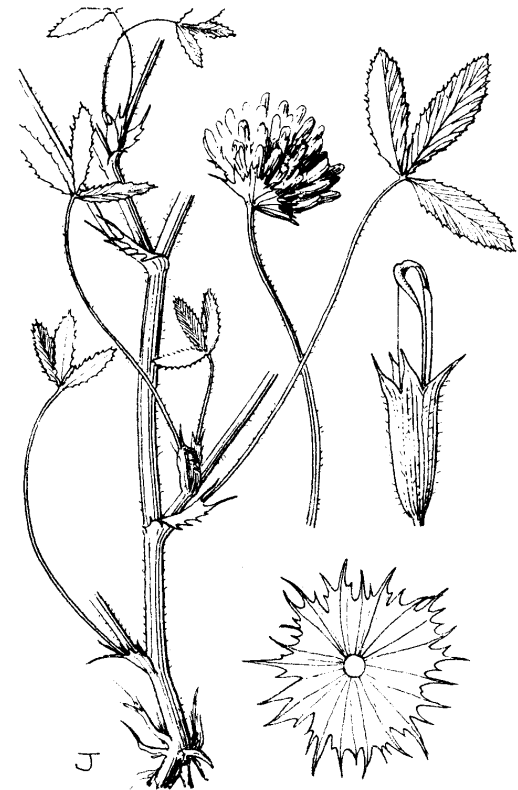
*Trifolium angustifolium*\*  
narrow-leaved clover\*



Neal Kramer

*Trifolium arvense*\*  
rabbitfoot clover\*

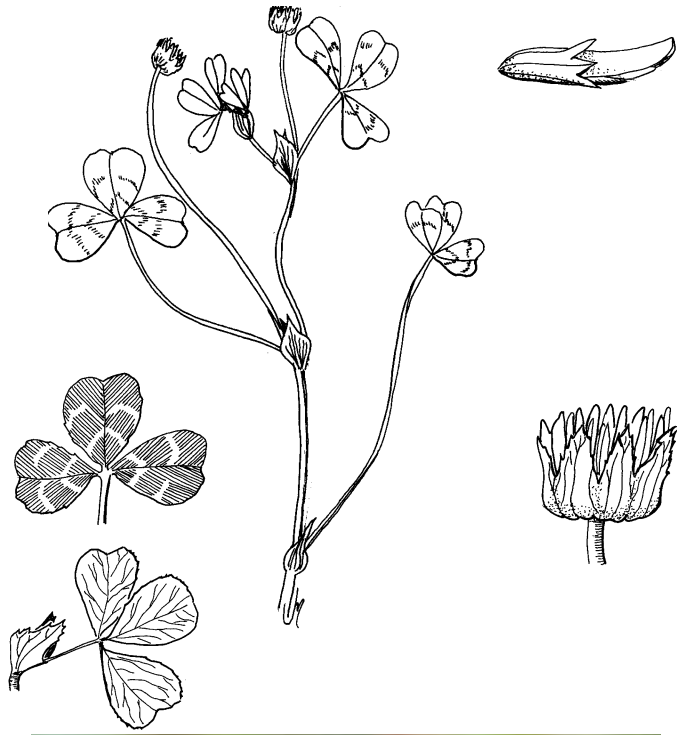
13



Barry Breckling

*Trifolium obtusiflorum*  
clammy clover

34



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*Trifolium microdon*  
Valparaiso clover

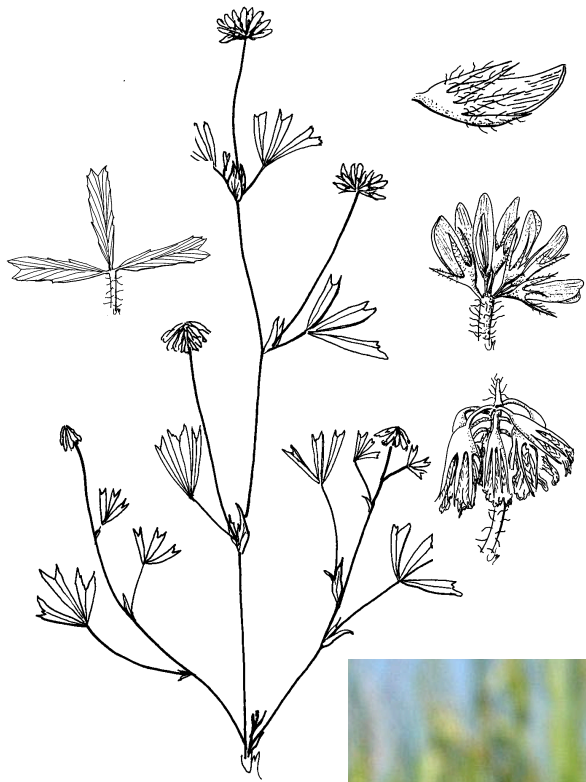
33



Neal Kramer

*Trifolium barbigerum* var. *barbigerum*  
bearded clover

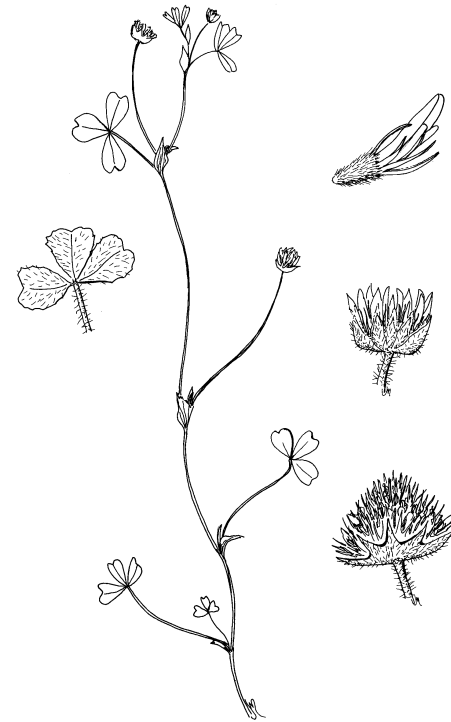
14



Carol W. Witham

*Trifolium bifidum* var. *bifidum*  
notch-leaved clover

15

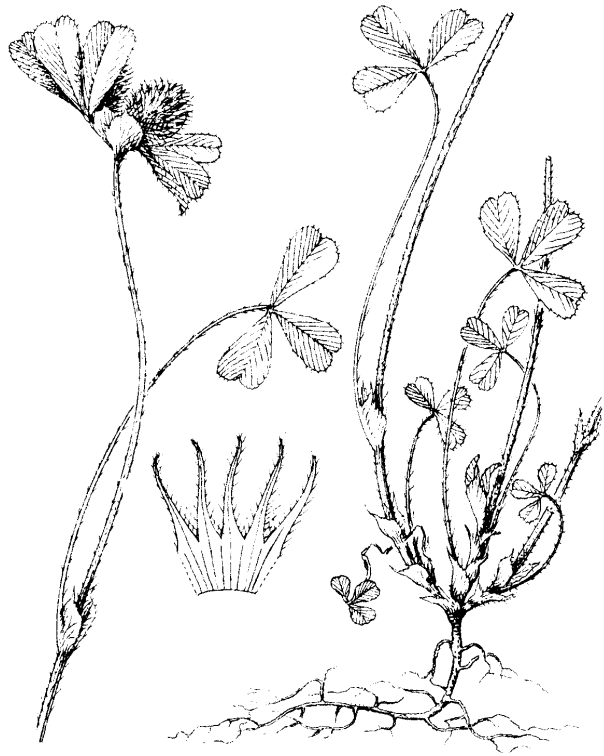


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*Trifolium microcephalum*  
small-headed clover

32





*Trifolium macraei*  
Macrae's clover

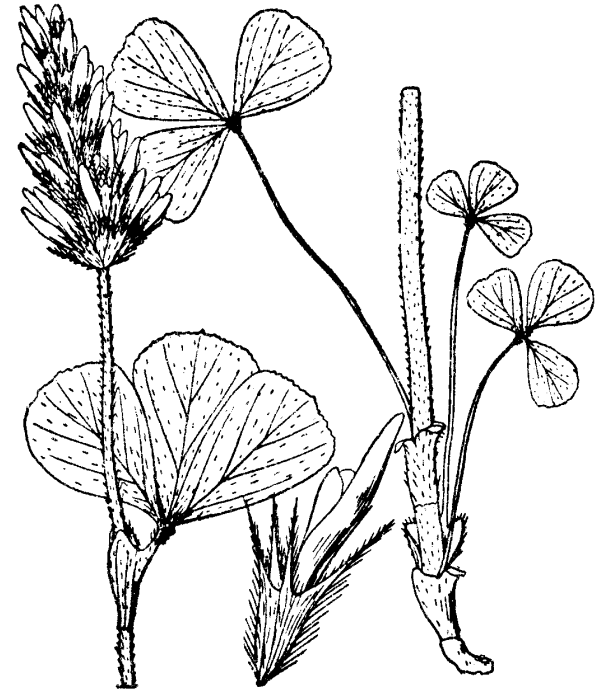


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*Trifolium bifidum* var. *decipiens*  
deceptive clover



*Trifolium campestre*\*  
hop clover\*

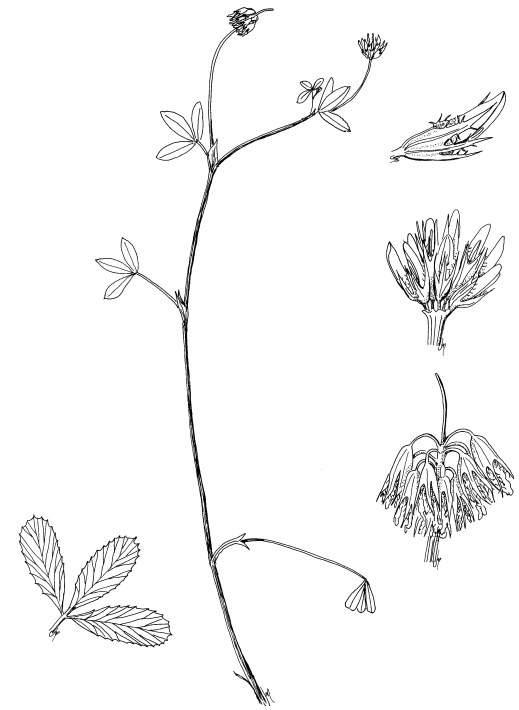


Neal Kramer

*Trifolium incarnatum*\*  
crimson clover\*



*Trifolium hirtum*\* rose clover\*



*Trifolium ciliolatum*  
tree clover



Zoya Akulova

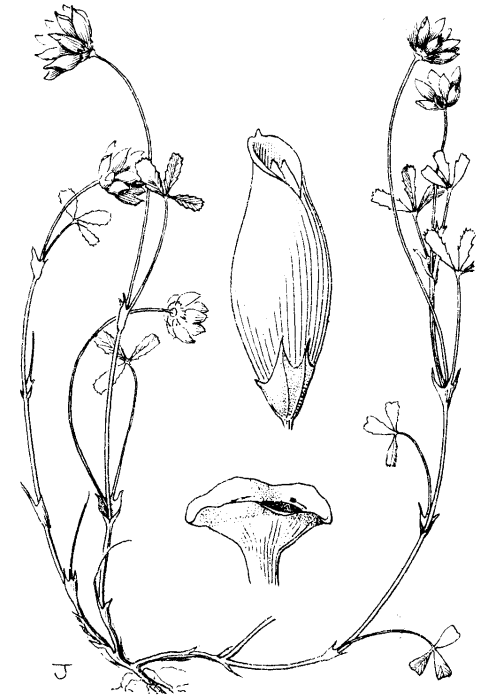
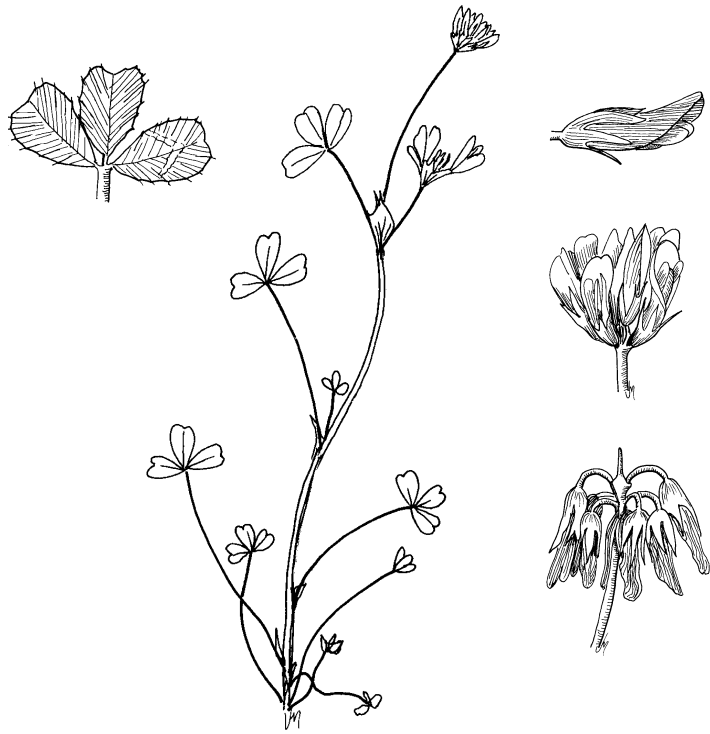
*Trifolium depauperatum* var. *amplexens*  
fusedbract pale sack clover

19



*Trifolium grayi* (*barbigerum* var. *andrewsii*)  
Gray's clover

28



Zoya Akulova

*Trifolium gracilentum* var. *gracilentum*  
(pin-point clover)

27



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*Trifolium depauperatum* var. *depauperatum*  
(dwarf sack clover)

20

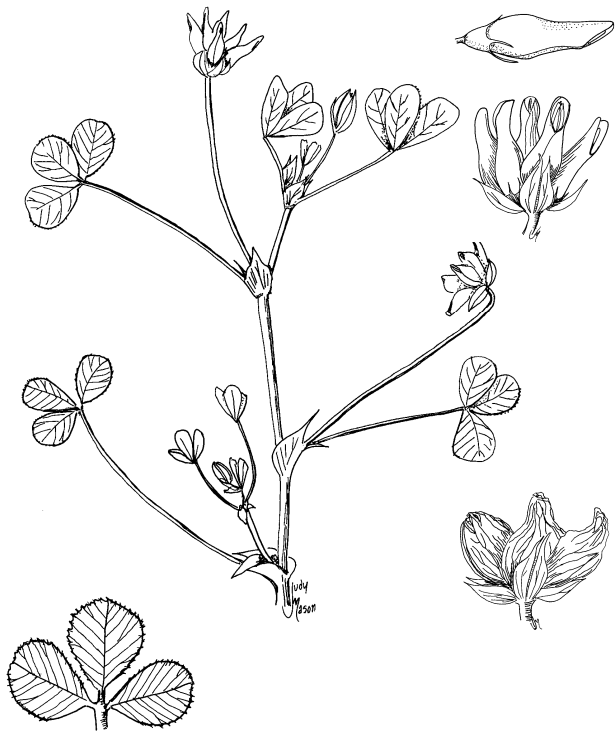


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*Trifolium depauperatum* var. *truncatum*  
common pale sack clover



*Trifolium glomeratum*\*  
little rose clover\*



*Trifolium fucatum* sour clover



*Trifolium dichotomum* (*T. albopurpureum* var. *dichotomum*)  
branched Indian clover



*Trifolium dubium*\*  
little hop clover\*



*Trifolium fragiferum*\*  
strawberry clover\*