FIELD KEY TO SOUTHERN CALIFORNIA *LUIDIA*

by D. B. Cadien - CSDLAC 27JUN94

Three species of the asteroid genus *Luidia* are taken at shelf depths within the Southern California Bight. They are well described in Fisher's Asteroidea of the North Pacific and Adjacent Waters, Vol. 1 (1911). They are -

	Fisher 1911	Maluf 1988
Luidia foliolata Grube 1866	18-349m	0-476m
Luidia armata Ludwig 1905	28-90m	15-284m
Luidia asthenosoma Fisher 1906	35-430m	20-620m

any trawl from 30m or deeper can contain all three together, although that would be unusual. Easiest field discrimination is on the basis of color.

Luidia foliolata is "a curious neutral olive drab or pinkish gray" on the aboral surface (Fisher 1911). I would call this gray with occasional white paxillae forming lighter spots. The species is yellowish white on the oral surface

Luidia armata (formerly *L. ludwigi*) is mottled dark purplish brown, light purplish brown, and white, giving the animal the appearance of a tile mosaic aborally. The mosaic effect is heightened by patterns in which paxillae of each color alternate individually, and others where groups of adjacent paxillae are of the same color. This color pattern is most apparent on the disk and arm bases, with regenerated arm sections usually less variegated. The oral surface is dirty white or cream

Luidia asthenosoma is nearly uniform dark reddish brown aborally (burnt sienna in Fisher 1911), and white on the oral surface

KEY

1.a Reddish aborally; with narrow arms and relatively long (≈ 1/3 arm width) adambulacral spines [confirmed if mid dorsal paxillae stellate under hand lens].....*Luidia asthenosoma*

1.b Aboral color subdued, greyish to purplish brown; arms not particularly narrow, adambulacral spines less than 1/4 arm width [mid dorsal paxillae quadrate under hand lens].....2

2.a Aboral surface of arms and disk mottled with blotchy white, purplish and light brown areas [confirmed if adambulacral pedicellaria present under hand lens].....*Luidia armata*

2.b Aboral surface of arms and disk nearly uniform greyish, with only occasional cream colored paxillae [confirmed if lacking adambulacral pedicellaria under hand lens].....*Luidia foliolata*

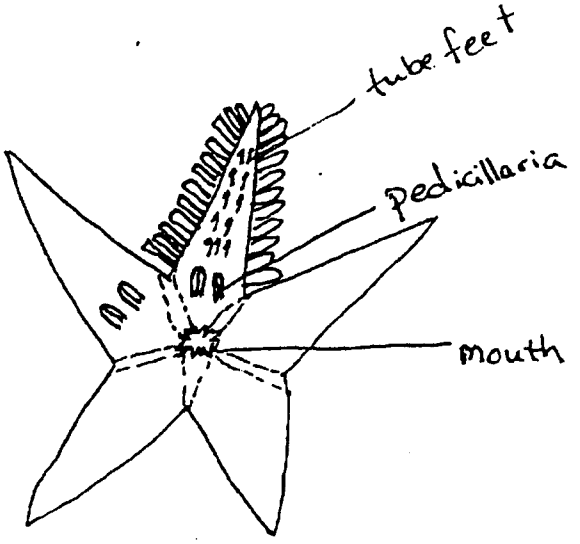
Luidia Table

	Pedicellaria*	Arm spines	Color	Comments
L. foliolata	Lacking	Single row/ short	"uniform" grey	Can have some white spots
L. armata	tri-vavle	Single row/ short	pinkinsh-grey to wine red	blotchy mosaic pattern as animal matures
L. asthenosoma	bi-valve	Multiple rows/ long	Deep red	Arms break off easily

***The pedicellaria are difficult to see in the field and on small specimens need to be seen under a dissecting scope. They are located on the ventral surface of the arms, near the jaws - see drawing.**

In *L. foliolata* the dorsal most arm spines are broad and flattened, versus tapered in *L. armata*.

Bring small specimens back to the lab for FID.



Ventral view