


Common Introduced Land Snails in Hawai'i


Taylor M.B. Maruno, Bishop Museum, Honolulu. Illustrations by Lily Evans (Shell Shapes) and Andy J. Huang (Shell Terminology)

Shell Shapes


Conical



Beehive
Resembles a traditional beehive




Bulimoid
Shell height is greater than shell width, shell width increasing regularly




Subcylindrical
Shell width increases regularly in early whorls, and slows in later whorls


Heliciform




Globose
Similar to heliciform, higher spire and more rounded shape overall



Depressed Heliciform
Shell width is greater than shell height

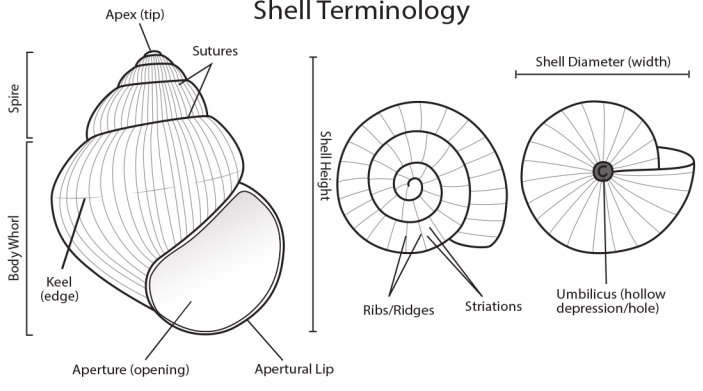


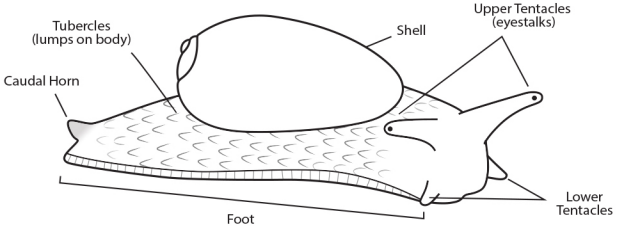
Discoidal
Shell width is greater than shell height, top and bottom of shell flattened with little to no spire elevation



Succiniform
The shell shape of the Succineidae, which has a large aperture and a larger shell height than shell width. The spire is relatively much shorter and smaller than the body whorl.

Shell Terminology





Achatinidae

Lissachatina fulica Giant African snail

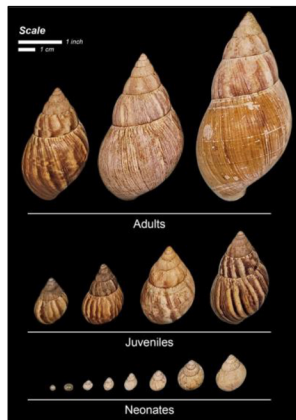
Shell brown with tan/yellow striped pattern (juveniles have an almost translucent yellow shell with black speckles); body is dark brown

Lays bright yellow eggs (looks like tic-tacs)

The largest land snail present in Hawai'i; widespread across all islands; huge agricultural pest



Shell height: 5-15 cm
Shell shape: conical (bulimoid)
Keel: absent



Bulimulidae

Bulimulus gadalupensis West Indian Bulimulus

Shell ranges from pale white, yellow-tan, to brown color, usually with distinct spiral bands (lots of variation)

Body is whitish yellow color with dark eyestalks

Pretty uniformly cone-shaped, smooth shell



Shell height: 2 cm
Shell shape: conical (bulimoid)
Keel: absent



Streptaxidae

Tayloria kibweziensis
(formerly in genus *Gonaxis*)



Shell pale, somewhat translucent; compact, bulbous shape with shallow ribs (grooves)
Bright orange/yellow body

Juveniles look much different from adult snails—shell is more uniformly circular and flatter



Shell height: 2 cm
Shell shape: conical (beehive)
Keel: absent

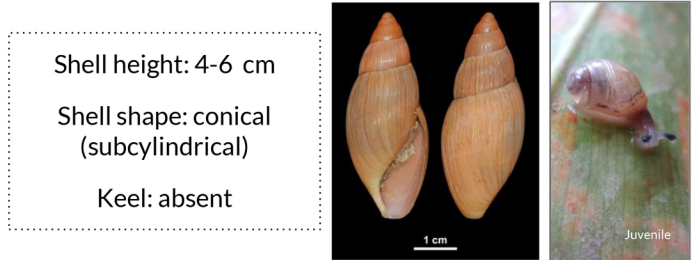
Spiraxidae

Euglandina rosea
Rosy wolfsnail

Shell is a uniform pinkish-tan color; body light brown/grey with thin median line running down from head

Has “mustache-looking” projections in addition to the regular set of lower tentacles extending out near mouth

When fully extended, body (foot) is very long and slender (nearly double the length of the shell)



Shell height: 4-6 cm
Shell shape: conical (subcylindrical)
Keel: absent

Assimineidae

Taiwanassiminea affinis
(formerly *Cyclotropis* sp.)



Shell usually dark brown in color; body white/light grey

Very small snail, adults around the size of a grain of rice; has a pointed apex

Usually found in shaded, damp areas (under pots, near water)

Has an operculum



Shell height: 2-4 mm
Shell shape: conical (bulimoid)
Keel: absent

Gastrocoptidae

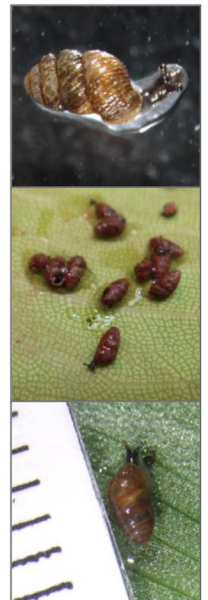
Gastrocopta servilis
Wandering snag tooth snail

Shell is uniformly brown with ridges (grooves) running down whorls

Tiny snail; apex more blunt and rounded than *T. affinis*

Snail has multiple “teeth” projecting inside aperture (although it can be hard to see with body inside)

Shell height: 2 mm
Shell shape: conical (elongated beehive)
Keel: absent



Subulininae

(Achatinidae subfamily)



Paropeas achatinaceum



Opeas hannense



Allopeas gracile



Subulina octona

A complex of species from this subfamily were introduced to Hawai'i and have since established here

All are relatively small snails with slender, elongated shells and characteristic bright yellow bodies

Shell height: up to 1.5 cm
Shell shape: conical (subcylindrical)
Keel: absent



Allopeas clavulinum

Numerous species of Subulininae, all non-native, have been recorded in Hawai'i, but can be difficult to distinguish because they share similar features. As a subfamily however, Subulininae can be identified by the unique characteristics that differentiate them from other land snails, such as size, shell shape, and body color.

Succineidae

(Amber snails)



Succinea unicolor

Shell is thin and translucent with a small spire; body pattern visible through shell (golden/brown/black splotches)

Body is pale tan color and cannot fully retract into shell

Not to be confused with Hawai'i's native Succineidae species, which live in high elevation forests

Shell length: up to 1.5 cm
Shell shape: succiniform
Keel: absent



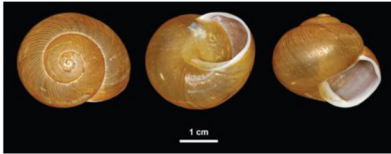
Succinea costaricana



Different species of non-native *Succinea* have been recorded in Hawai'i, but are difficult to distinguish because they look very similar. As a family however, Succineidae can be easily identified as they have a unique shell shape different from all other land snail families. They're usually found in very wet/damp environments, not in direct sunlight.

Camaenidae

Zachrysia provisoria Cuban brown snail



Shell translucent golden color, usually looks dark brown with yellow speckles due to coloration of body inside

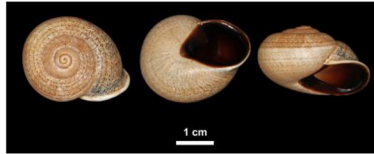
Body dark brown; aperture lip is white; shell has ribs (grooves) running down whorls from apex



No umbilicus
Shell diameter: 2-3 cm
Shell shape: heliciform (globose)
Keel: absent

Helicidae

Otala lactea Spanish milk snail



Shell color can vary, usually light brown with dark brown bands that spiral along whorls; speckled pattern

Body light grey; opening of aperture deep dark brown



No umbilicus
Shell diameter: 3-4 cm
Shell shape: heliciform (globose)
Keel: absent

Cornu aspersum Garden snail



Shell color can vary, usually dark brown/tan reticulated pattern with golden flecks or stripes

Body brown-grey with obvious tubercles; relatively large aperture



No umbilicus
Shell diameter: 2-4 cm
Shell shape: heliciform (globose)
Keel: absent

Bradybaenidae

Bradybaena similaris Asian tramp snail



Shell pale tan or light brown color, more matte than glossy, and can be slightly translucent, sometimes with a single dark brown peripheral band

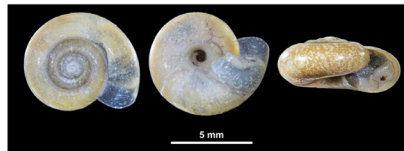
Body is light tan color with dark eye stalks; aperture has somewhat of a flaring lip

Umbilicus present
Shell diameter: 1-1.5 cm
Shell shape: heliciform (globose)
Keel: sometimes present



Oxychilidae

Oxychilus allarius Garlic snail



Shell translucent yellowish-brown color, glossy/shiny; body is blueish grey; relatively long eyestalks when fully extended

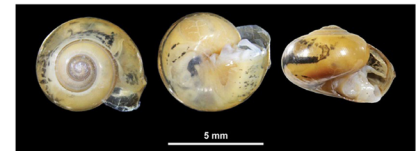
When disturbed, snail emits a garlic-smelling odor

Umbilicus present
Shell diameter: 5-9 mm
Shell shape: heliciform (depressed heliciform)
Keel: absent



Helicarionidae

Ovachlamys fulgens Jumping snail

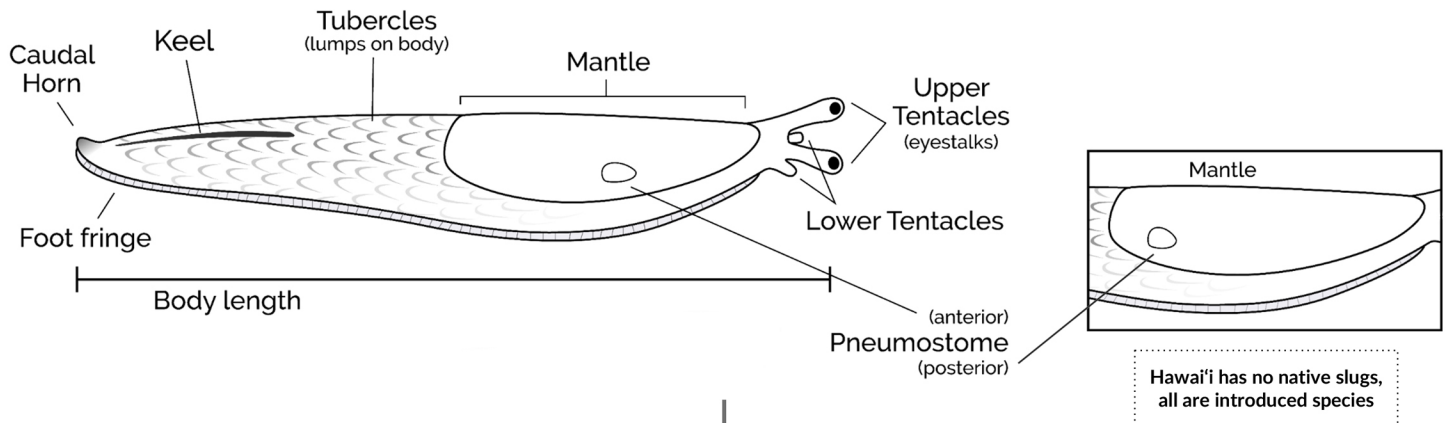


Shell glossy/translucent with yellowish tint; may see black splotched pattern in the shell from body inside; caudal horn present

When fully extended, tail is very long/slender (greater than length of shell); if disturbed, snail may "jump" (convulse its body to escape)

No umbilicus
Shell diameter: 5-7 mm
Shell shape: heliciform (globose)
Keel: absent





Agriolimacidae

Deroceras laeve

Marsh/meadow slug

Uniform dark brown/black to pale grey/cream

Cylindrical body; thin skin with wrinkles; "fingerprint" on mantle



Body Length: 1-2 cm

Mantle: covers 1/2 of body

Position of pneumostome on mantle: posterior

Keel: present (short, can be hard to see)

[*D. laeve* and *D. reticulatum* hard to tell apart by external looks]

Deroceras reticulatum

Grey garden slug

Pale grey/cream or brown, usually w/ dark flecks (reticulate pattern)

Large, distinct tubercles; milky-colored mucus



Body Length: 2-4 cm

Mantle: covers 1/3 of body

Position of pneumostome on mantle: posterior

Keel: present (short)

Arionidae

Arion distinctus

Roundback slug

Tan/yellow grey w/ dark bands on each side of body/mantle; underside yellow-orange
Body wall has tubercles



Body Length: 3 cm

Mantle: covers 1/3 of body

Position of pneumostome on mantle: anterior

Keel: absent

Arion intermedius

Hedgehog slug

Yellowish white/grey body, darker head; underside yellowish grey

Body wall has tubercles



Body Length: 1-2 cm

Mantle: covers 1/3 of body

Position of pneumostome on mantle: anterior

Keel: absent

Limacidae

Limacus flavus

Yellow cellar slug

Yellow with grey molting (speckly); pale blue tentacles

No longitudinal lines



Body Length: 7-10 cm

Mantle: covers 1/3 of body

Position of pneumostome on mantle: posterior

Keel: present (short)

Limax maximus

Leopard slug

Pale brown/grey with "leopard" spots; 2-3 dark longitudinal lines on each side (could be broken up into spots); mantle marbled, but not banded
One of the largest land slugs



Body Length: 10-20 cm

Mantle: covers 1/3 - 1/2 of body

Position of pneumostome on mantle: posterior

Keel: present (short)

Ambigolimax valentianus

Greenhouse slug

Yellowish grey/violet; two dark lines running parallel to midline (mantle also banded)

Body gelatinous/watery looking; light-colored



Body Length: 4-7 cm

Mantle: covers 1/3 of body

Position of pneumostome on mantle: posterior

Keel: present (short)

[*A. valentianus* and *A. parvipenis* hard to tell apart by external looks]

Ambigolimax parvipenis

Balkan threeband slug

Yellowish grey, somewhat translucent; two dark lines running parallel to midline (mantle also banded)
Looks similar to *A. valentianus*



Body Length: 4-7 cm

Mantle: covers 1/3 of body

Position of pneumostome on mantle: posterior

Keel: present (short)

Ariophantidae

Parmarion martensi

Yellow-shelled semi-slug

Speckly brown with pale line down keel

Visible reduced shell (yellow) in posterior half of mantle; has a caudal horn at end of tail



Body Length: 4-7 cm

Mantle: covers $\frac{2}{3}$ of body

Position of pneumostome on mantle: posterior

Keel: present

Milacidae

Milax gagates

Jet slug

Dark grey to reddish-black with a pale foot fringe and light-colored underside

16-17 grooves between keel and pneumostome; horseshoe groove on mantle



Body Length: 3-6 cm

Mantle: covers $\frac{1}{3}$ of body

Position of pneumostome on mantle: posterior

Keel: present

Philomycidae

Meghimatium bilineatum

Chinese slug

Yellow/greyish white to cream with faint stripe down middle; two dark stripes on each side of body; may have dark splotches

Body long and slender when fully extended



Body Length: 5 cm

Mantle: covers full body

Position of pneumostome on mantle: anterior

Keel: absent

Pallifera sp.

Grey with darker head/eyestalks; may be speckled

Smaller slug than *M. bilineatum*



Body Length: 2-4 cm

Mantle: covers full body

Position of pneumostome on mantle: anterior

Keel: absent

Veronicellidae

Laevicaulis alte

Tropical leatherleaf

Black with very thin cream-colored median line; pale yellow-white or orange underside

Very flat and wide slug; skin looks rough/velvety (due to papillae)



Body Length: 7 cm

Mantle: covers full body

Position of pneumostome on mantle: not visible

Keel: absent

Veronicella cubensis

Cuban slug

Highly variable coloration, usually brown with pale median line; can have black spots that coalesce into two lateral lines

Flattened body; the most common slug in Hawai'i



Body Length: 7 cm

Mantle: covers full body

Position of pneumostome on mantle: not visible

Keel: absent

Sarasinula plebeia

Bean slug

Brown to yellowish brown with very fine black speckles; looks very similar to *V. cubensis*

Flattened body; sometimes looks like body is covered in small pockmarks



Body Length: 5-7 cm

Mantle: covers full body

Position of pneumostome on mantle: not visible

Keel: absent

[*V. cubensis* and *S. plebeia* hard to tell apart by external looks]