

# Field ID Guide for Milkweed and Monarch Surveys

In this guide, you will find information on how to identify monarch caterpillars to each of the five instars, how to identify monarch eggs vs latex balls, information on the 5 species of milkweed present in Idaho, how to discern between a monarch and a viceroy butterfly (the closest look-a-like in Idaho), and how to identify male vs female monarch butterfly adults. Where possible, web-links are included to provide more detailed information than is present in this guide.

- A. [Instar identification Guide \(5 instars\)](#) – thank you to the Monarch Joint Venture for the following information.

## 1st Instar



Body Length	2 to 6 mm
Body width	0.5 to 1.5 mm
Front Tentacles	Small bumps
Back tentacles	Barely visible
Head Capsule	0.6 mm in diameter

### Appearance

A newly-hatched monarch larva is pale green or grayish-white, shiny, and almost translucent. It has no stripes or other markings. The head looks black, with lighter spots around the antennae and below the mouthparts, and may be wider than the body. There is a pair of dark triangular patches between the head and front tentacles which contain setae, or hairs. The body is covered with sparse setae. Older first instar larvae have dark stripes on a greenish background.

After hatching, the larva eats its eggshell (chorion). It then eats clusters of fine hairs on the bottom of the milkweed leaf before starting in on the leaf itself. It feeds in a circular motion, often leaving a characteristic, arc-shaped hole in the leaf. First (and second) instar larvae often

respond to disturbance by dropping off the leaf on a silk thread, and hanging suspended in the air. Time in this larval stage is usually 1-3 days, temperature dependent.



Image: One first instar larva.

## 2nd Instar



Body Length	6 to 9 mm
Body Width	1 to 2 mm
Front Tentacles	0.3 mm
Back Tentacles	Small knobs
Head Capsule	0.8 mm in diameter

### Appearance

Second instar larvae have a clear pattern of black (or dark brown), yellow and white bands, and the body no longer looks transparent and shiny. An excellent characteristic to use in distinguishing first and second instar larvae is a yellow triangle on the head and two sets of yellow bands around this central triangle. The triangular spots behind the head do not have the long setae present in the spots on the first instar larvae. The setae on the body are more abundant, and look shorter and more stubble-like than those on first instar larvae. Time in this larval stage is usually 1-3 days, temperature dependent.



Image: Two second instar larvae.

### 3rd Instar



Body Length	10 to 14 mm
Body Width	2 to 3.5 mm
Front Tentacles	1.7 mm
Back Tentacles	0.9 mm
Head Capsule	1.5 mm in diameter

#### Appearance

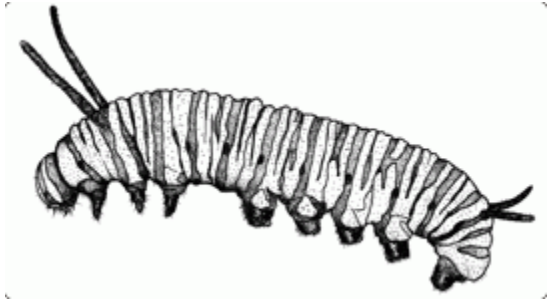
The black and yellow bands on the abdomen of a third instar larva are darker and more distinct than those of the second instar, but the bands on the thorax are still indistinct. The triangular patches behind the head are gone, and have become thin lines that extend below the spiracle. The yellow triangle on the head is larger, and the yellow stripes are more visible. The first set of thoracic legs are smaller than the other two, and is closer to the head. Time in this larval stage is usually 1-3 days, temperature dependent.

Third instar larvae usually feed using a distinct cutting motion on leaf edges. Unlike first and second instar larvae, third (and later) instars respond to disturbance by dropping off the leaf and curling into a tight ball. Monarch biologist Fred Urquhart called this behavior "playing possum."





## 4th Instar



Body Length	13 to 25 mm
Body Width	2.5 to 5 mm
Front Tentacles	5 mm
Back Tentacles	2 mm
Head Capsule	2.2 mm in diameter

### Appearance

Fourth instar larvae have a distinct banding pattern on the thorax which is not present in third instars. The first pair of legs is even closer to the head, and there are white spots on the prolegs that were less conspicuous in the third instar.

Male and female larvae can't be distinguished by the naked eye until the pupal stage. However, male and female respective reproductive organs are visible in dissected, third, fourth, and fifth instars. Time in this larval stage is usually 1-3 days, temperature dependent.



## 5th Instar



Body Length	25 to 45 mm
Body Width	5 to 8 mm
Front Tentacles	11 mm
Back Tentacles	4 mm
Head Capsule	3.5 mm in diameter

### Appearance

The body pattern and colors of fifth instar larvae are even more vivid than they were in the fourth instar, and the black bands look wider and almost velvety. The front legs look much smaller than the other two pairs, and are even closer to the head. There are distinct white dots on the prolegs, and the body looks quite plump, especially just prior to pupating.

Fifth instar monarch larvae often chew a shallow notch in the petiole of the leaf they are eating, which causes the leaf to fall into a vertical position. They move much farther and faster than other instars, and are often found far from milkweed plants as they seek a site for pupating. Time in this larval stage is usually 3-5 days, temperature dependent.



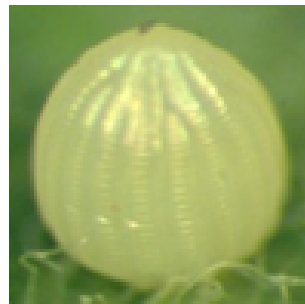
**Left:** 5th instar on milkweed leaf

**Right:** 5th instar larvae can vary greatly in size; both of these larvae are 5th instars. (Photo: Kip Kiphart).



## B. Guide to Monarch eggs vs milkweed latex balls

**Monarch Eggs** – Eggs laid on underside of leaves singly. One end is slightly conical or pointed and longitudinal grooves run from tip to base of the egg. They are translucent greenish/yellow and regularly/evenly shaped. Eggs are very small and basically the size of the eye of a needle. See photos below.







**Milkweed Latex Balls** – Latex balls are caused when anything damages the plant and it leaks its latex fluid which then dries. Small nicks, insect bites etc. can cause a latex ball. They can be as small or similar in size to monarch eggs. However, they will not have the longitudinal grooves, are more opaque and might have irregular shapes. They can be VERY similar to eggs and difficult to tell apart unless you have a hand-lens.



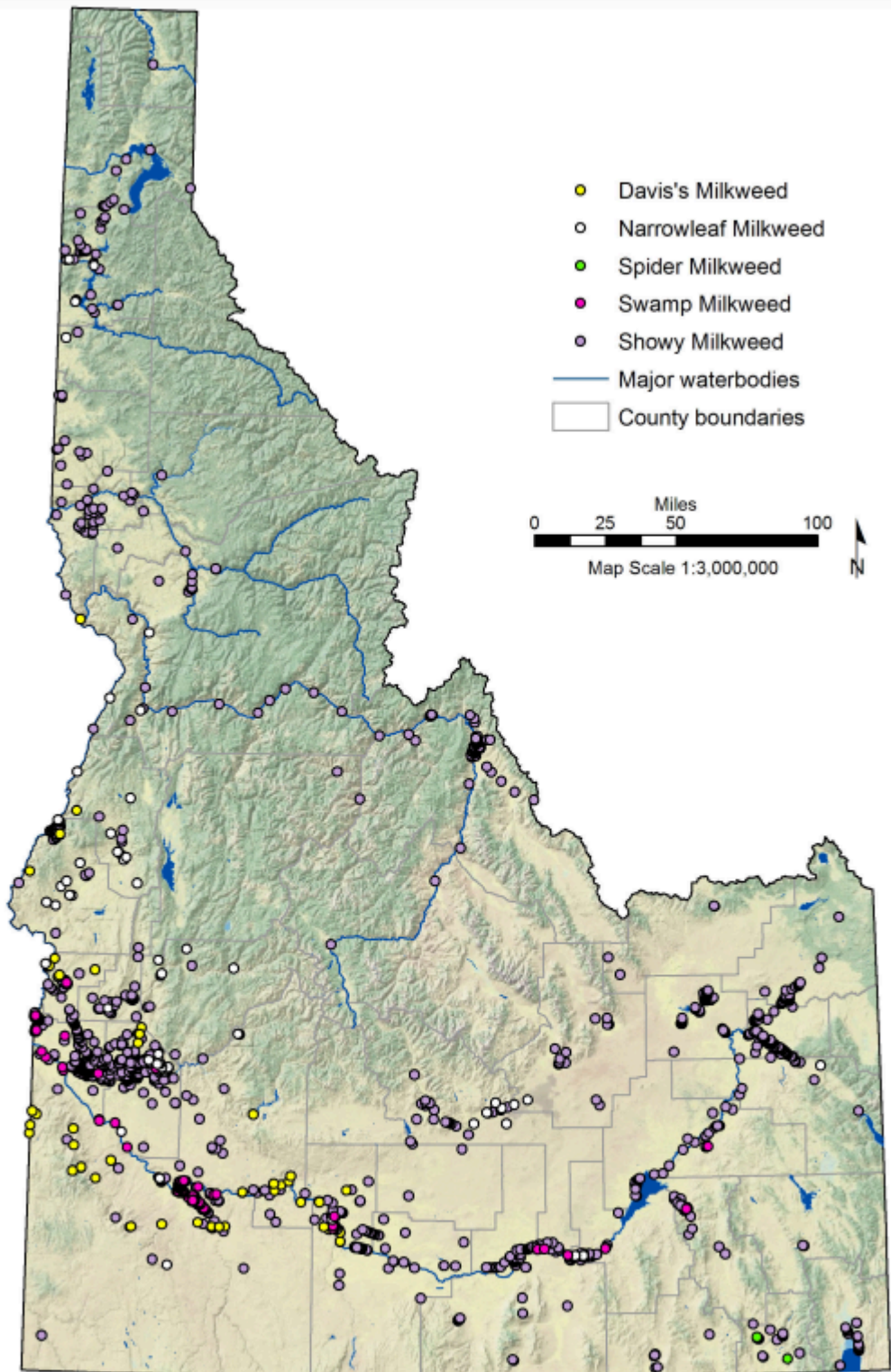
Milky latex oozing out due to caterpillar chewing damage. These will dry forming latex "balls".



## **C. Guide to Species of Milkweed in Idaho**

There are 5 species of milkweed in Idaho. The most common and well-distributed is Showy Milkweed. We also have Swamp, Narrow-leaved, Davis's and Spider Milkweed. See below for photos. All photos and maps are excerpts from Kinter's (2019) Guide to Milkweeds of Idaho. Please refer to this guide which can be found online <https://idfg.idaho.gov/species/sites/default/files/Idaho%20Milkweed%20Guide%2C%20Kinter%202019-07-16.pdf> for more ID characteristics.





*Milkweed occurrences in Idaho, 1910-2019. Data: Idaho Fish and Wildlife Information System Species Diversity Database, includes targeted inventories, surveys, incidental observations, and herbarium specimens. Map created 22 May 2019 by Leona Svancara.*

# Native Milkweeds of Idaho



**DAVIS'S MILKWEED**  
*Asclepias cryptoceras ssp. davisii*



**SPIDER MILKWEED**  
*Asclepias asperula ssp. asperula*



**NARROWLEAF MILKWEED**  
*Asclepias fascicularis*



**SWAMP MILKWEED**  
*Asclepias incarnata ssp. incarnata*  
Photo by Bill Ament



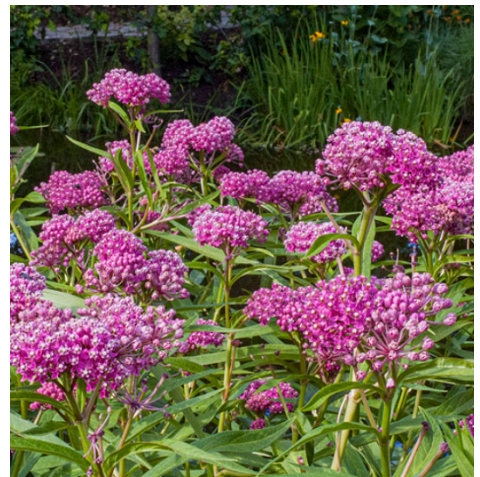
**SHOWY MILKWEED**  
*Asclepias speciosa*  
Photo by Bill Harryman



1. **Showy Milkweed** – widest distribution; can be found along roadsides, ditches, streambanks, lakes, agriculture and can tolerate drier more alkaline soils. Large broad leaves, large showy flower clusters.



2. **Swamp Milkweed** – grows in wetlands and around water. Flowers are very showy, bright pink. Fairly rare in Idaho and only found sporadically along the Snake River in Southern Idaho. Narrow, lanceolate leaves and narrow erect seed pods.





3. **Narrow-leaved Milkweed** – has the narrowest leaves of all Idaho’s species. Found mostly on the western edge of the state. Can be confused with swamp milkweed but leaves and overall plant growth is shorter than swamp milkweed. Can be found growing in dry shrub steppe, along roads and also in damp sandy or clay soils.



4. **Davis’s Milkweed** – also known as jewel milkweed or pallid milkweed. Found occasionally in southwest Idaho in the Snake River plain in dry ash outcrops, loose, sandy or clay soils in shrub steppe. Very distinct and unique looking.



5. **Spider Milkweed** – an Idaho “Rare Plant” also known as Antelope Horns. Spider Milkweed has only been documented in Franklin County in Southeast Idaho. Prefers dry barren or gravelly soils, open shrublands and slopes.



### D. Guide to identifying adult Western Monarch vs Viceroy

#### Butterflies

Viceroy butterflies are smaller than monarchs but this difference can be difficult to tell when they are on the wing. Viceroy's have a line crossing the hind-wing just past the half-way point of the wing and monarchs do not (see photo below, credit journey north.org). Viceroy's tend to fly more erratically as compared to the monarchs floaty flight pattern of flap, flap glide. Monarchs seem more relaxed when flying than viceroy do.





**Monarch**  
*Danaus plexippus*



**Viceroy**  
*Limenitis archippus*

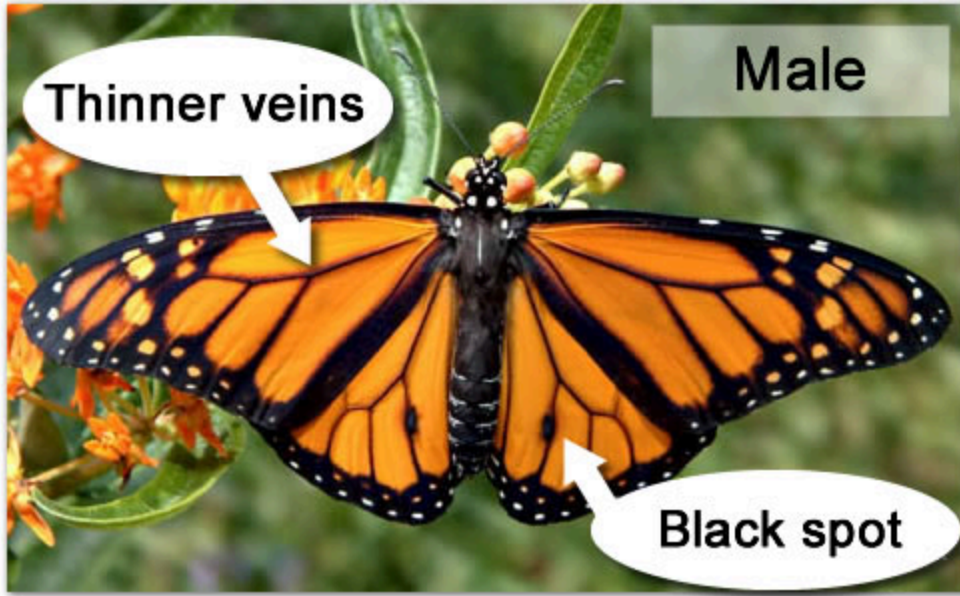


<https://journeynorth.org/tm/monarch/Viceroy1.html>

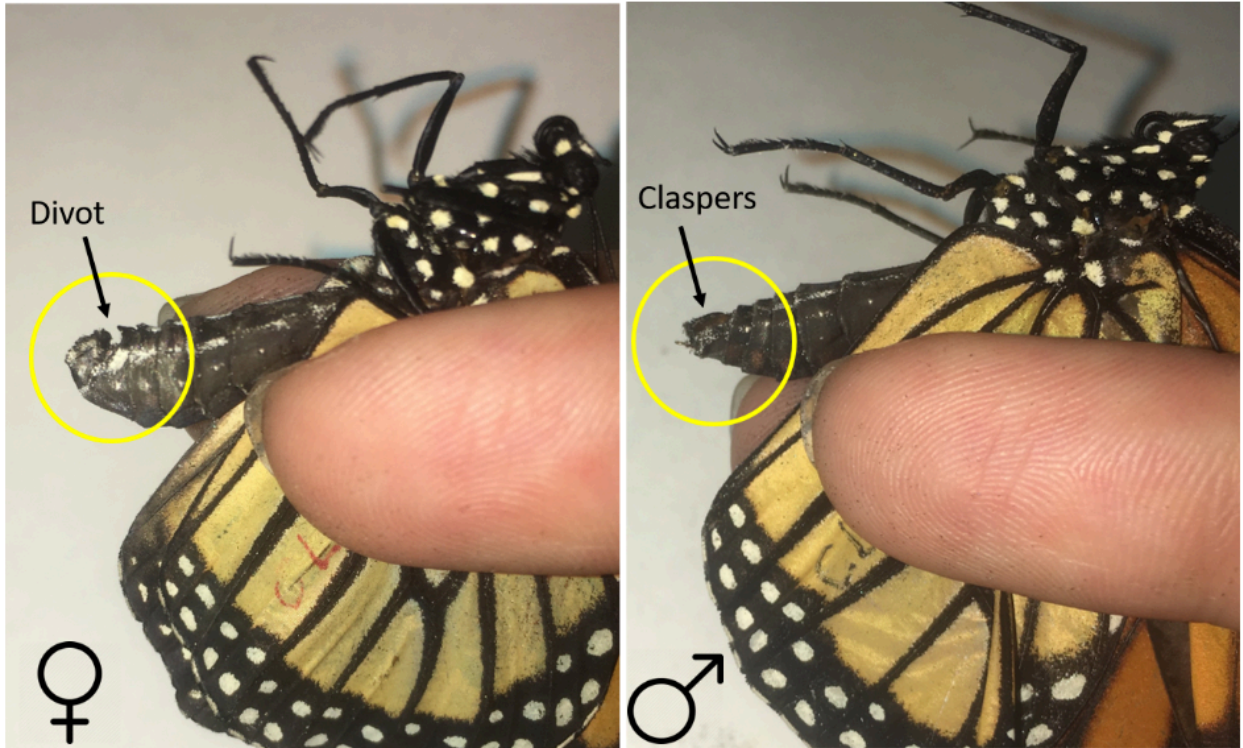
E. **Guide to identifying Male vs Female adult Monarchs**

You must be able to view the upper side of the hindwing to identify male or female individuals. Male monarchs have an oval black spot (this is a scent gland) on the hindwing and have thinner wing veins overall. Females do not have the black spot on the hindwing and their wing veins are thicker.

When held in the hand, you can look at a butterfly's genitalia to discern if it is male or female. Males have claspers that they use to hold the female butterfly during mating. Females have a divot in the underside of their abdomen near the end, this is where the male latches on with his claspers. See photo below.



[https://journeynorth.org/tm/monarch/id\\_male\\_female.html](https://journeynorth.org/tm/monarch/id_male_female.html)



A female and male monarch. The differences between the sexes is highlighted in the yellow circles.

<https://www.butterflybiology.com/blog/2017/2/10/can-you-tell-the-difference-between-a-male-and-female-butterfly>