

GUIDE TO PHOTOGRAPHING FRESHWATER MUSSELS

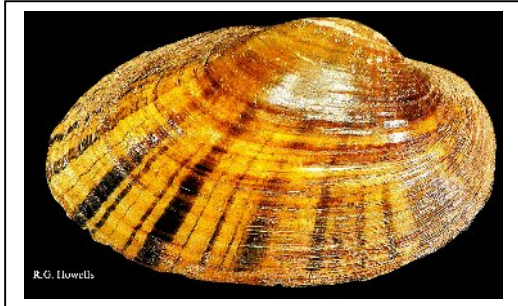


Fig. 1. Lateral exterior view.

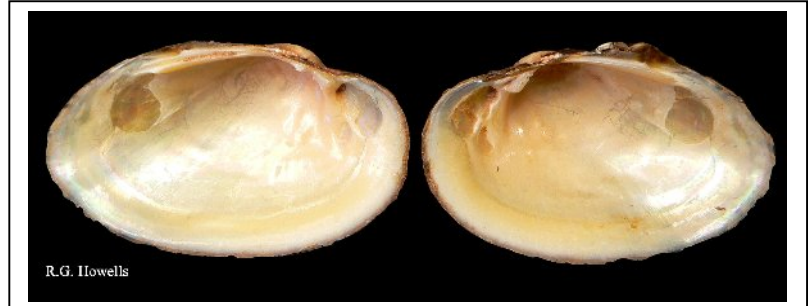


Fig. 2. Lateral interior views of left and right valves.



**Fig. 3.
Dorsal view.**

Since the late 1980s and early 1990s, freshwater mussels (Unionidae) have been recognized as important, but rapidly declining, elements of aquatic ecosystems. Recent state legal protections in Texas have further focused attention on this group. However, unionids can be notoriously difficult to identify. Fortunately, modern digital photography and electronic transfer of images can quickly and efficiently assist with problem identifications. Still, images must be shot in ways to help rather than hinder easy recognition of specimens in questions.

Lateral external views may be the most common angle (Fig. 1). These can be used with living specimens of rare species. This view should show the shape of the shell, beak elevation, coloration, and external sculpture. Specimen size can be stated or shown by inclusion of a ruler or background grid. The next most important view includes the interior of each valve (Fig. 2) needed to show the hinge teeth, interdentum, muscle scars, pallial line, and nacre color, as well as beak elevation. Dorsal views (Fig. 3) may be necessary to show shell inflation and also



**Fig. 4.
Anterior view.**

whether beaks face each other or turn forward. Anterior views (Fig. 4) may also show inflation as well as beak elevation and possible gaps between valves. Only one exterior view is needed and it can be photographically reversed, but both interior views may be required and these cannot be reversed. It is usually best to position the dorsal side up in photographs.

Except in a few special cases, mussels should always be photographed directly from a lateral, dorsal, or anterior (or posterior) view and NOT on acute angles that obscure shell shape, form, and other detail. Laying a specimen on a flat surface and shooting directly down on it is often best. Rings cut from PVC pipe can be used to stabilize shells on flat surfaces. A foam block with V- and elliptical notches can also help hold shells or valves being photographed. It is often best to shoot external and internal view on individual frames. Dark exteriors and stark white interiors often cause digital cameras to select intermediate exposures that produce low-quality images of both views. Modern digital cameras can often give excellent results with available light or simple desk lights; expensive flash systems are rarely needed. Photo quality of 300 dpi may be needed in publications, but 75-150 dpi is often sufficient for identification. Photo size of 5-10 inches (longest axis) is often acceptable; there is no reason to send email photo attachments of 3-5 feet wide!



Fig. 5 (left). Foam blocks with notches cut to hold shells or valves and PVC rings used to stabilize specimens for better shots.

Figs. 6 & 7 (right). Mussel shells are best photographed directly down on their lateral sides. Shooting on acute angles obscures important features needed for accurate identification.



Shells placed on photocopy machines can sometimes produce images for identification.





Figs. 8 and 9. Final photo style used by BioStudies is a composite of both interior valve views with an exterior valve overlaid, as well as anterior or dorsal views, or both.

Fig. 10. The Freshwater Mollusk Conservation Society has recommended images with one view of each valve.

NEVER: Shoot sharply angled shots that obscure specimen shape or outline, out of focus pictures, too closely or far away, over- or under-exposed shots, or massively large files. Shown right are examples of how shots made on sharp angles can be misleading.

ALWAYS: Include basic collection data including collection location, date, and collector. Remove excess mud, calcium, and algae from subject shells.

Shown below are photos sent to BioStudies that obscure important features needed for identification.



Figs. 11-15. Angled shots above and below. Comparative lateral shots (right).



Figs. 16-18. Below - undesirable photos difficult to use for identification.



Fig. 19. Hinged, butterfly views do show features of both valves, but can be confusing to some individuals. Here the right pseudocardinal tooth is actually on the left side and its major up-to-down axis actually runs right-to-left in this photos.

