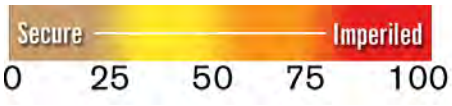
Margaritifera hembeli

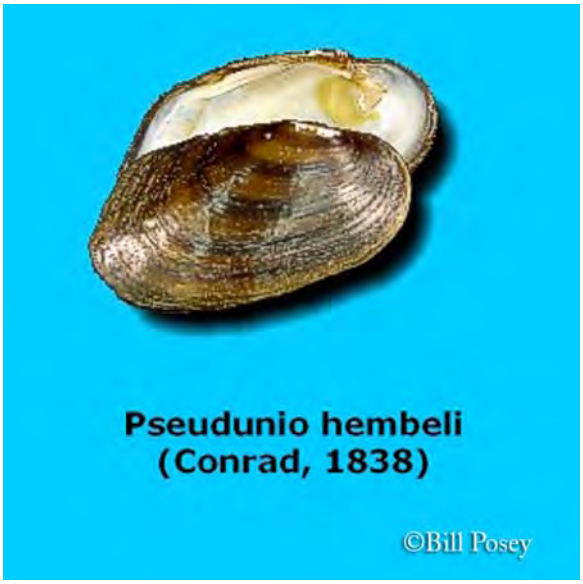
Louisiana Pearlshell

Class: Bivalvia
Order: Unionoida
Family: Margaritiferidae

Priority Score: **65** out of 100



Population Trend: Unknown



Global Rank: G1 — Critically imperiled species

State Rank: SU — Presumed extirpated in Arkansas

Distribution

Occurrence Records

Ecoregions where the species occurs:

- ☐ Ozark Highlands
- ☐ Boston Mountains
- ☐ Arkansas Valley
- ☐ Ouachita Mountains
- ☑ South Central Plains
- ☐ Mississippi Alluvial Plain
- ☐ Mississippi Valley Loess Plains

Suitable Substrate ?

Description

Shell oblong, obovate to subrhomboid, sometimes a little arcuate, subsolid to solid, inequilateral; beaks moderately full, their sculpture not seen; posterior ridge low, rounded or somewhat doubled;

Shell brownish or blackish; left valve with two low, stumpy, rough pseudocardinals and two remote, feeble laterals; right valve with one pseudocardinal and behind it a vestige of a second with one lateral; nacre whitish or lurid purplish with numerous pits.

Host Fish

Striped Shiner, Redfin Shiner, Golden Shiner

Ecobasins

South Central Plains - Red River

Habitats	Weight
Natural Run: Headwater	Optimal

Problems Faced

Threat: Nutrient loading
Source: Grazing/Browsing

Threat: Nutrient loading
Source: Urban development

Data Gaps/Research Needs

Conduct distribution surveys.

Determine habitat preferences.

Determine problems faced and sources of problems faced.

Conservation Actions	Importance	Category
More data is needed to determine conservation actions.	High	Data Gap

Monitoring Strategies

Additional information is needed before a monitoring strategy can be developed.

Comments

Prefers water quality low in nutrients and is often found in runs along cobble banks in small streams. Only one record in Arkansas from Dorcheat Bayou (Columbia County). (AFMC 2004a, 2004b, 2004c, 2005, Paul Johnson personal communication 2005, Smith 2001).

Taxa Association Team and Peer Reviewers

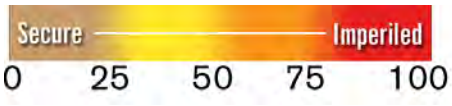
AGFC Mr. Bill Posey, USFWS-ES Mr. Chris Davidson, ASU Dr. John Harris, AHTD Mr. Josh Seagraves, AHTD Mr. Ben Thesing

Obovaria olivaria

Hickorynut

Class: Bivalvia
Order: Unionoida
Family: Unionidae

Priority Score: 19 out of 100



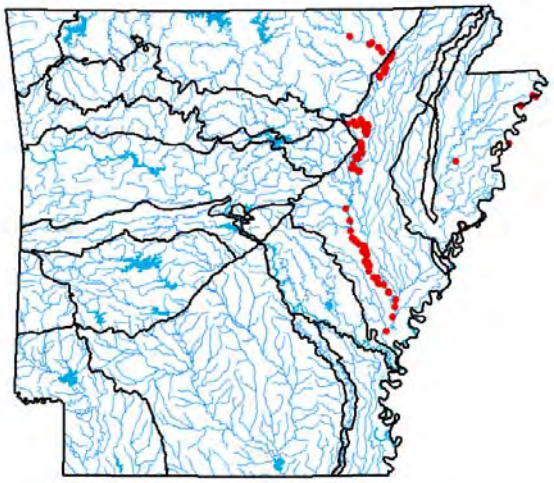
Population Trend: Unknown

Global Rank: G4 — Apparently secure species

State Rank: S3 — Vulnerable in Arkansas

Distribution

Occurrence Records



Ecoregions where the species occurs:

- [x] Ozark Highlands
- [ ] Boston Mountains
- [ ] Arkansas Valley
- [ ] Ouachita Mountains
- [x] South Central Plains
- [x] Mississippi Alluvial Plain
- [ ] Mississippi Valley Loess Plains

Suitable Substrate sand/gravel

Description

Shell oval or oblong, thick, solid, and inflated. Anterior and posterior ends broadly rounded. Umbos slightly elevated above the hinge line, rounded, curved inward, and directed forward. Beak sculpture

of four or five delicate, double-looped bars, usually evident only in very small shells. Shell smooth, olive green or yellowish brown, faintly rayed in young shells, becoming dark brown in old individuals. Length to four inches (10.2 cm). Pseudocardinal teeth triangular, relatively small, widely divergent, and horizontal. Lateral teeth straight to slightly curved, wide, heavy, and fairly long. Interdentum narrow. Beak cavity shallow. Nacre white, iridescent posteriorly.

Host Fish

Shovelnose Sturgeon

Ecobasins

Mississippi River Alluvial Plain - St. Francis River

Mississippi River Alluvial Plain - White River

Ozark Highlands - White River

Habitats

	Weight
Natural Pool: - Medium - Large	Suitable
Natural Run: - Medium - Large	Optimal
Natural Shoal: - Medium - Large	Optimal

Problems Faced

Threat: Biological alteration
Source: Commercial harvest

Threat: Habitat destruction
Source: Channel alteration

Threat: Habitat destruction
Source: Channel maintenance

Threat: Habitat destruction
Source: Dam

Threat: Habitat destruction
Source: Water diversion

Threat: Sedimentation
Source: Agricultural practices

Threat: Sedimentation
Source: Channel maintenance

Threat: Sedimentation
Source: Road construction

Data Gaps/Research Needs

Conduct life history study.

Conduct status survey.

Conservation Actions

	Importance	Category
Maintain stable populations of host fish (sturgeon) in the White and Black rivers.	High	Habitat Protection
Manage watershed, addressing physical, chemical, biological and land use components, to restore or sustain aquatic life.	High	Threat Abatement

Monitoring Strategies

Continue to monitor occurrence in ongoing river surveys.

Comments

Widely distributed in the White River drainage but never comprises a large percentage of a community (AFMC 2004a, 2004b, 2004c, 2005).

Taxa Association Team and Peer Reviewers

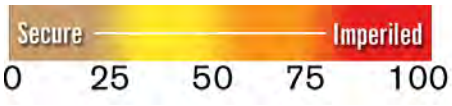
AGFC Mr. Bill Posey, USFWS-ES Mr. Chris Davidson, ASU Dr. John Harris, AHTD Mr. Josh Seagraves, AHTD Mr. Ben Thesing

Obovaria sp. cf arkansasensi

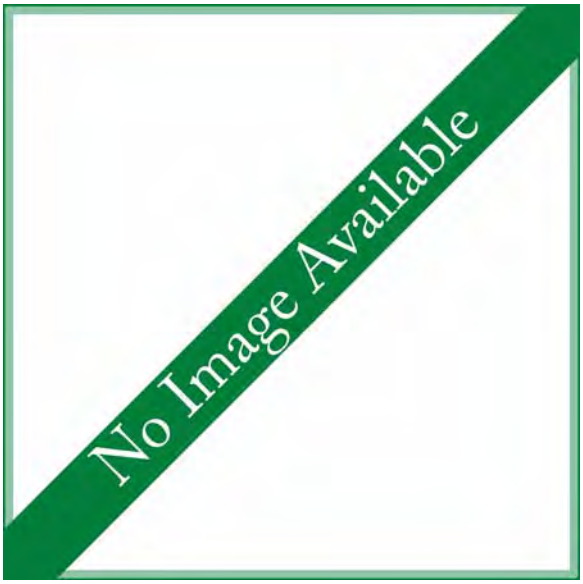
"White" Hickorynut

Class: Bivalvia
Order: Unionoida
Family: Unionidae

Priority Score: 19 out of 100



Population Trend: Unknown



Global Rank: GNR — Not yet ranked

State Rank: S2 — Imperiled in Arkansas

Distribution

Occurrence Records

Ecoregions where the species occurs:

- [x] Ozark Highlands
- [x] Boston Mountains
- [ ] Arkansas Valley
- [ ] Ouachita Mountains
- [ ] South Central Plains
- [ ] Mississippi Alluvial Plain
- [ ] Mississippi Valley Loess Plains

Suitable Substrate gravel/sand

Description

Shell ovate, smooth, rounded before and below, nearly straight from the beak to post-point, umbonal ridge low, beaks not high, sculpture not seen; nacre bluish-white; teeth double in left, single in right

valve; cardinals stout, erect; laterals not very large.

Host Fish

Unknown

Ecobasins

Boston Mountains - White River

Ozark Highlands - White River

Habitats	Weight
Natural Pool: Headwater	Suitable
Natural Run: Headwater	Suitable
Natural Shoal: Headwater	Suitable

Problems Faced

Threat: Habitat destruction
Source: Dam

Threat: Habitat destruction
Source: Grazing/Browsing

Threat: Habitat destruction
Source: Resource extraction

Threat: Nutrient loading
Source: Confined animal operations

Threat: Nutrient loading
Source: Grazing

Threat: Sedimentation
Source: Forestry activities

Threat: Sedimentation
Source: Grazing/Browsing

Threat: Sedimentation
Source: Resource extraction

Threat: Sedimentation
Source: Road construction

Data Gaps/Research Needs

Compare taxonomic relationship of southern hickorynut in Ouachita River watershed to those in other watersheds.

Conduct life history study.

Conduct status survey.

Conservation Actions

	Importance	Category
Manage watershed, addressing physical, chemical, biological and land use components, to restore or sustain aquatic life.	High	Threat Abatement

Monitoring Strategies

Additional information is needed before a monitoring strategy can be developed.

Comments

Known from two sites in the Little Red River Basin. Other records from the White River drainage may represent this taxon, but genetic confirmation is needed if extant populations can be found (AFMC 2015).

Taxa Association Team and Peer Reviewers

AGFC Mr. Bill Posey, USFWS-ES Mr. Chris Davidson, ASU Dr. John Harris, AHTD Mr. Josh Seagraves, AHTD Mr. Ben Thesing

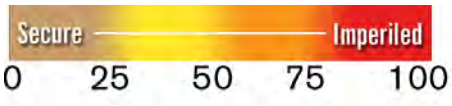
Obovaria sp. cf arkansasensis
"White" Hickorynut

Pleurobema cordatum

Ohio Pigtoe

Class: Bivalvia
Order: Unionoida
Family: Unionidae

Priority Score: 19 out of 100



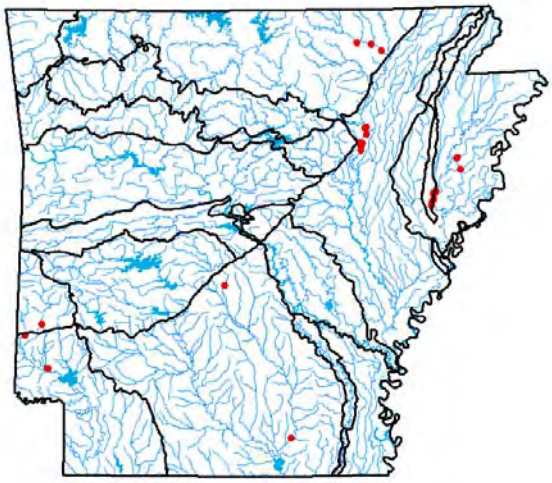
Population Trend: Unknown

Global Rank: G4 — Apparently secure species

State Rank: S3 — Vulnerable in Arkansas

Distribution

Occurrence Records



Ecoregions where the species occurs:

- [x] Ozark Highlands
- [ ] Boston Mountains
- [ ] Arkansas Valley
- [ ] Ouachita Mountains
- [x] South Central Plains
- [x] Mississippi Alluvial Plain
- [ ] Mississippi Valley Loess Plains

Suitable Substrate ?

Description

Shell moderately thick, triangular, and moderately inflated. Anterior end rounded, posterior end bluntly pointed. Dorsal margin straight, ventral margin curved anteriorly, straight posteriorly. Umbos

moderately high and projecting forward. Beak sculpture of two or three elevated ridges. Shell smooth, a broad shallow sulcus present in front of the posterior ridge. Periostracum dark brown or chestnut, juveniles often lighter and marked with green rays, particularly near the beaks. Length to four inches (10.2 cm). Pseudocardinal teeth well developed; two in the left valve, one in the right. Lateral teeth straight to slightly curved. Beak cavity very deep. Nacre variable, usually white, occasionally pink or rose-colored in some individuals.

Host Fish

Bluegill, Rosefin Shiner

Ecobasins

Mississippi River Alluvial Plain - St. Francis River

Mississippi River Alluvial Plain - White River

Ozark Highlands - White River

South Central Plains - Ouachita River

Habitats	Weight
Natural Run: - Medium - Large	Optimal
Natural Shoal: - Medium - Large	Suitable

Problems Faced

Threat: Habitat destruction
Source: Channel alteration

Threat: Habitat destruction
Source: Channel maintenance

Threat: Habitat destruction
Source: Dam

Threat: Hydrological alteration
Source: Dam

Threat: Nutrient loading
Source: Confined animal operations

Threat: Nutrient loading
Source: Grazing/Browsing

Data Gaps/Research Needs

Conduct genetic analysis of Pleurobema to determine if P. cordatum is present in Arkansas. Review distribution and abundance based on taxonomic status.

Determine habitat preferences.

Determine host fish and host fish availability.

Determine if species is extirpated from the state.

Determine problems faced and sources of problems faced.

Conservation Actions

	Importance	Category
Manage watershed, addressing physical, chemical, biological and land use components, to restore or sustain aquatic life.	Medium	Threat Abatement

Monitoring Strategies

Additional information is needed before a monitoring strategy can be developed.

Comments

May be multiple species. True Ohio pigtoe is a large river obligate. Some Arkansas P. cordatum records may be based on misidentifications of Round Pigtoe (P. sintoxia) or Pyramid Pigtoe (P. rubrum), investigation ongoing (AFMC 2004a, 2004b, 2004c, 2005, AGFC 2003, Ahlstedt and Jenkinson 1987, 1991, AHTD 1989, 1994, ANHI 2003, Bates and Dennis 1983, Branson 1973, 1983, Christian 1995, Clark 1985, 1987, Coker 1919, Crump 2003, Crump and others 2003a, 2003c, 2003d, 2003e, 2003g, 2003q, 2003r, 2003t, Cummings and Mayer 1992, Davidson and others 1997, Ecological Consultants 1984, Gordon 1980, 1980a, 1982, Gordon and Brown 1980, Gordon and others 1979, 1980, Harris 1991d, 1992a, 1994b, 1996, 1997c, 1999, 1999a, 2001, 2002, Harris and Gordon 1988, 1990, Harris and Milam 2002, Jenkinson and Ahlstedt 1987, Johnson 1980, Meek and Clark 1912, Mehlhop-Cifelli and Miller 1989, Miller and Harris 1987, Oesch 1995, ONHI 2003, Posey 1997, Rust 1993, Stansbery and Stein 1982, Stein and Stansbery 1980, Turgeon and others 1988, 1998, USDA FS 1999, Vaughn and others 1997, Wheeler 1918, White 1977, Williams & others 1993).

Taxa Association Team and Peer Reviewers

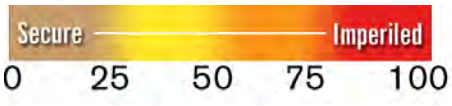
AGFC Mr. Bill Posey, USFWS-ES Mr. Chris Davidson, ASU Dr. John Harris, AHTD Mr. Josh Seagraves, AHTD Mr. Ben Thesing

Pleurobema riddellii

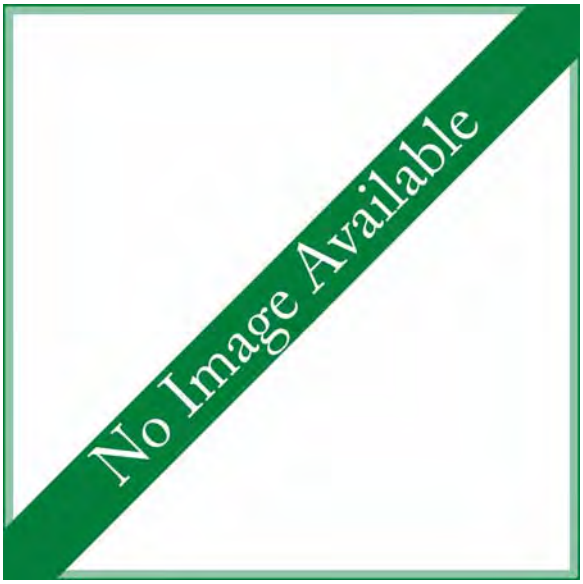
Texas Pigtoe

Class: Bivalva
Order: Unionoida
Family: Unionidae

Priority Score: **65** **out of 100**



Population Trend: Stable

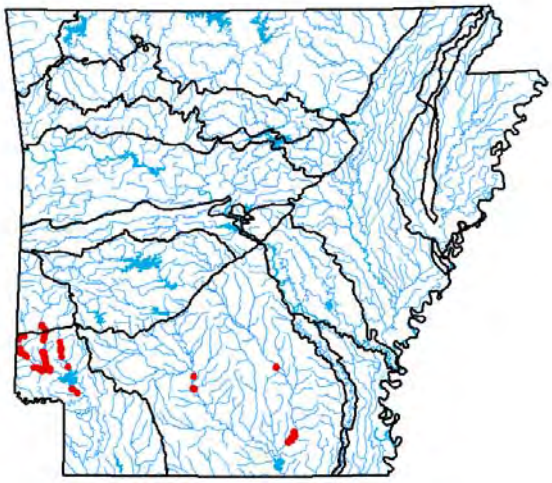


Global Rank: G1G2 — Critically imperiled (uncertain rank)

State Rank: S1 — Critically imperiled in Arkansas

Distribution

Occurrence Records



Ecoregions where the species occurs:

- ☐ Ozark Highlands
- ☐ Boston Mountains
- ☐ Arkansas Valley
- ☐ Ouachita Mountains
- ☑ South Central Plains
- ☐ Mississippi Alluvial Plain
- ☐ Mississippi Valley Loess Plains

Suitable Substrate gravel/sand

Description

Shell triangular to rounded, short, inflated, solid. Umbos high and full above the hinge line; anterior end almost evenly rounded. Sulcus absent, disc flat to slightly convex; posterior ridge usually

rounded. Periostracum brown, greenish-brown, tan. Beak cavities moderately deep. Nacre bluish-white but becoming iridescent posteriorly.

Host Fish

Unknown

Ecobasins

Mississippi River Alluvial Plain (Bayou Bartholomew) - Ouachita River

South Central Plains - Ouachita River

South Central Plains - Red River

Habitats

	Weight
Natural Pool: - Medium - Large	Optimal
Natural Riffle: - Medium	Marginal
Natural Run: - Medium - Large	Optimal
Natural Shoal: - Medium - Large	Marginal

Problems Faced

Threat: Habitat destruction
Source: Channel alteration

Threat: Habitat destruction
Source: Channel maintenance

Threat: Habitat destruction
Source: Dam

Threat: Hydrological alteration
Source: Dam

Threat: Nutrient loading
Source: Confined animal operations

Threat: Nutrient loading
Source: Grazing/Browsing

Data Gaps/Research Needs

Conduct genetic analysis of Pleurobema to determine geographic extent of P. riddellii in Arkansas. Review distribution and abundance based on taxonomic status.

Conduct life history study.

Conservation Actions

Importance	Category
Medium	Threat Abatement

Manage watershed, addressing physical, chemical, biological and land use components, to restore or sustain aquatic life.

Monitoring Strategies

Continue to monitor occurrence in ongoing river surveys.

Comments

The species has been confirmed in the Little, Cossatot, Saline and Rolling Fork rivers. However, a morphologically similar species occurs in the Ouachita drainage that may be a different distinct species. (Turgeon and others 1988, Hayes 2010, Bouldin and others 2013).

Taxa Association Team and Peer Reviewers

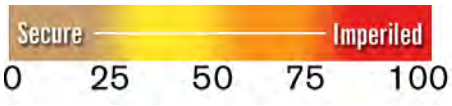
AGFC Mr. Bill Posey, USFWS-ES Mr. Chris Davidson, ASU Dr. John Harris, AHTD Mr. Josh Seagraves, AHTD Mr. Ben Thesing

Pleurobema rubrum

Pyramid Pigtoe

Class: Bivalvia
Order: Unionoida
Family: Unionidae

Priority Score: **38** out of 100



Population Trend: Stable

Global Rank: G2G3 — Imperiled (uncertain rank)

State Rank: S2 — Imperiled in Arkansas

Distribution

Occurrence Records

Ecoregions where the species occurs:

- [x] Ozark Highlands
- [x] Boston Mountains
- [x] Arkansas Valley
- [x] Ouachita Mountains
- [x] South Central Plains
- [x] Mississippi Alluvial Plain
- [ ] Mississippi Valley Loess Plains

Suitable Substrate gravel/sand

Description

Shell thick, triangular and elongate, and moderately inflated. Anterior end rounded, posterior end rounded to bluntly pointed. Dorsal and ventral margins curved. Umbos high, projected forward, and

anterior to rest of shell. Shell smooth or satin-like. Shallow sulcus present. Periostracum brown or chestnut, with faint green rays on the umbos. Length to four inches (10.2 cm). Pseudocardinal teeth well developed; two in the left valve, one in the right. Lateral teeth straight or slightly curved. Beak cavity moderately deep. Nacre pink or rose-colored in most individuals, occasionally white.

Host Fish

Unknown

Ecobasins

Arkansas Valley - Arkansas River

Boston Mountains - Arkansas River

Mississippi River Alluvial Plain - White River

Mississippi River Alluvial Plain (Bayou Bartholomew) - Ouachita River

Mississippi Valley Loess Plains - St. Francis River

Ouachita Mountains - Ouachita River

Ozark Highlands - White River

South Central Plains - Ouachita River

South Central Plains - Red River

Habitats

	Weight
Natural Pool: Headwater - Medium - Large	Optimal
Natural Riffle: Headwater	Marginal
Natural Run: Headwater - Medium - Large	Optimal
Natural Shoal: - Medium - Large	Marginal

Problems Faced

Threat: Habitat destruction
Source: Channel alteration

Threat: Habitat destruction
Source: Channel maintenance

Threat: Habitat destruction
Source: Dam

Threat: Hydrological alteration
Source: Dam

Threat: Nutrient loading
Source: Confined animal operations

Threat: Nutrient loading
Source: Grazing/Browsing

Data Gaps/Research Needs

Conduct genetic analysis of Pleurobema to determine if P. rubrum is present in Arkansas. Review distribution and abundance based on taxonomic status.

Conduct life history study.

Conservation Actions

	Importance	Category
Manage watershed, addressing physical, chemical, biological and land use components, to restore or sustain aquatic life.	Medium	Threat Abatement

Monitoring Strategies

Continue to monitor occurrence in ongoing river surveys.

Comments

Extremely abundant in the lower Ouachita and lower Saline. Upper Ouachita and upper Saline rivers populations are peripheral. Known to occur in the lower St. Francis River (AFMC 2004a, 2004b, 2004c, 2005, AGFC 2003, AHTD 1989, Ahlstedt and Jenkinson 1987, 1991, ANHI 2003, Branson 1983, Christian 1995, Clark 1987, Coker 1919, Crump 2003, Crump and others 2003a, 2003c, 2003d, 2003e, 2003g, 2003q, 2003r, 2003t, Cummings and Mayer 1992, Davidson 1997, Davidson and Gosse 2001, Gordon 1980a, Gordon and others 1980, Harris 1986, 1989b, 1999, 1999a, 2001, 2002a, Harris and Gordon 1985, 1987, Harris and Milam 2002, 2002a, Harris and others 1997, Jenkinson 1989, Jenkinson and Ahlstedt 1987, 1994, Johnson 1980, Miller and Harris 1987, ONHI 2003, Posey 1997, Stansbery 1970, Stansbery and Stein 1982, Stein and Stansbery 1980, Turgeon and others 1988, 1998, USDA FS 1999, Vaughn 1996, Wheeler 1918, Williams & others 1993).

Taxa Association Team and Peer Reviewers

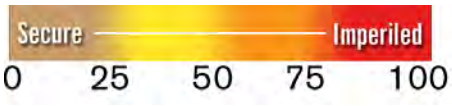
AGFC Mr. Bill Posey, USFWS-ES Mr. Chris Davidson, ASU Dr. John Harris, AHTD Mr. Josh Seagraves, AHTD Mr. Ben Thesing

Pleurobema sintoxia

Round Pigtoe

Class: Bivalva
Order: Unionoida
Family: Unionidae

Priority Score: 17 out of 100



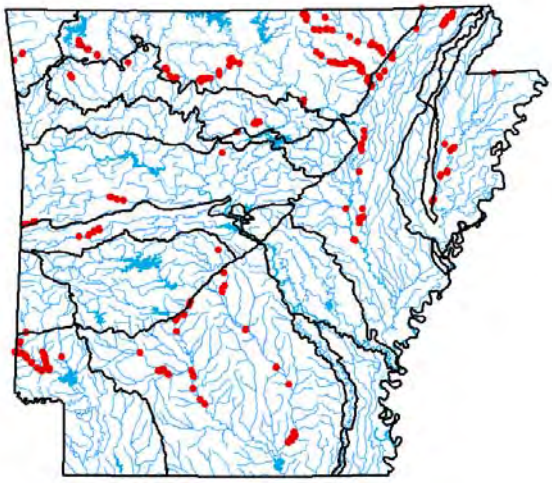
Population Trend: Stable

Global Rank: G4G5 — Apparently secure (uncertain rank)

State Rank: S3 — Vulnerable in Arkansas

Distribution

Occurrence Records



Ecoregions where the species occurs:

- [x] Ozark Highlands
- [x] Boston Mountains
- [x] Arkansas Valley
- [x] Ouachita Mountains
- [x] South Central Plains
- [x] Mississippi Alluvial Plain
- [ ] Mississippi Valley Loess Plains

Suitable Substrate gravel/sand

Description

Shell moderately thick, round, and compressed (medium-sized rivers) to inflated (large rivers). Anterior end rounded, posterior end rounded to bluntly pointed. Dorsal margin straight to slightly

curved, ventral margin usually curved. Umbos low and only slightly elevated above the hinge line. Beak sculpture of two or three elevated ridges on the umbo. Shell smooth. Periostracum greenish brown, light brown, or reddish brown in juveniles, becoming chestnut or dark brown in adults, with faint green rays visible near the beaks in some shells. Length to 4 inches (10.2 cm). Pseudocardinal teeth well developed; two in the left valve, one in the right. Lateral teeth straight. Beak cavity shallow (medium-sized rivers) to moderately deep (large rivers). Nacre variable from white to pink or rose-colored.

Host Fish

Spotfin Shiner, Northern Redbelly Dace, Bluntnose Minnow, Bluegill, Southern Redbelly Dace

Ecobasins

Arkansas Valley - Arkansas River

Mississippi River Alluvial Plain - White River

Mississippi Valley Loess Plains - St. Francis River

Ouachita Mountains - Ouachita River

South Central Plains - Ouachita River

South Central Plains - Red River

Habitats

	Weight
Natural Pool: Headwater - Medium - Large	Optimal
Natural Run: - Medium - Large	Optimal
Natural Shoal: - Medium - Large	Marginal

Problems Faced

Threat: Habitat destruction
Source: Channel alteration

Threat: Habitat destruction
Source: Channel maintenance

Threat: Habitat destruction
Source: Dam

Threat: Hydrological alteration
Source: Dam

Threat: Nutrient loading
Source: Confined animal operations

Threat: Nutrient loading
Source: Grazing/Browsing

Data Gaps/Research Needs

Conduct genetic analysis of Pleurobema to determine geographic extent of P. sintoxia in Arkansas. Review distribution and abundance based on taxonomic status.

Conservation Actions

	Importance	Category
Manage watershed, addressing physical, chemical, biological and land use components, to restore or sustain aquatic life.	Medium	Threat Abatement

Monitoring Strategies

Continue to monitor occurrence in ongoing river surveys.

Comments

Common but rarely abundant in streams where it is known to exist (AFMC 2015).

Taxa Association Team and Peer Reviewers

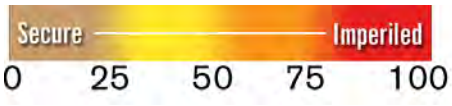
AGFC Mr. Bill Posey, USFWS-ES Mr. Chris Davidson, ASU Dr. John Harris, AHTD Mr. Josh Seagraves, AHTD Mr. Ben Thesing

Potamilus alatus

Pink Heelsplitter

Class: Bivalvia
Order: Unionoida
Family: Unionidae

Priority Score: **23** **out of 100**



Population Trend: Unknown

Global Rank: G5 — Secure

State Rank: S1 — Critically imperiled in Arkansas

Distribution

Occurrence Records

Ecoregions where the species occurs:

- ☐ Ozark Highlands
- ☐ Boston Mountains
- ☐ Arkansas Valley
- ☐ Ouachita Mountains
- ☐ South Central Plains
- ☑ Mississippi Alluvial Plain
- ☐ Mississippi Valley Loess Plains

Suitable Substrate sand/silt

Description

Shell large, elongate, laterally compressed and somewhat rectangular, thin in young shells to moderately thick in older individuals. Anterior end rounded, posterior end bluntly squared or

truncated. Umbos flattened and only slightly elevated above the hinge line. Beak sculpture of three or four concentric ridges, visible only in small shells. Large wing present posterior to the umbos. Shell smooth, dark green or brown, becoming black in old individuals. Young shells typically marked with dark green rays that become fainter with age. Length to eight inches (20.3 cm). Pseudocardinal teeth small, roughened, thin and divergent; two in the left valve, two in the right. Lateral teeth long, thin, and straight to slightly curved. Beak cavity shallow. Nacre usually purple or pinkish purple, rarely white; highly iridescent.

Host Fish

Freshwater Drum

Ecobasins

Mississippi River Alluvial Plain - St. Francis River

Habitats	Weight
Natural Run: - Medium - Large	Optimal
Natural Shoal: - Medium - Large	Suitable

Problems Faced

Threat: Habitat destruction
Source: Agricultural practices

Threat: Habitat destruction
Source: Channel alteration

Threat: Habitat destruction
Source: Channel maintenance

Threat: Habitat destruction
Source: Water diversion

Threat: Hydrological alteration
Source: Channel alteration

Threat: Hydrological alteration
Source: Water diversion

Threat: Sedimentation
Source: Agricultural practices

Threat: Sedimentation
Source: Channel maintenance

Threat: Sedimentation
Source: Road construction

Data Gaps/Research Needs

Determine extent of species' range.

Conservation Actions	Importance	Category
More data are needed to determine conservation actions.	Medium	Data Gap

Monitoring Strategies

Additional information is needed before a monitoring strategy can be developed.

Comments

Large river species rarely collected twice in Arkansas. Most individuals have been collected from the Mississippi River or adjacent backwaters. (AFMC 2004a, 2004b, 2004c, 2005, 2015).

Taxa Association Team and Peer Reviewers

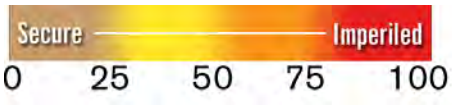
AGFC Mr. Bill Posey, USFWS-ES Mr. Chris Davidson, ASU Dr. John Harris, AHTD Mr. Josh Seagraves, AHTD Mr. Ben Thesing

Potamilus capax

Fat Pocketbook

Class: Bivalvia
Order: Unionoida
Family: Unionidae

Priority Score: **46** **out of 100**



Population Trend: Stable

Global Rank: G2 — Imperiled species

State Rank: S2 — Imperiled in Arkansas

Distribution

Occurrence Records

Ecoregions where the species occurs:

- ☐ Ozark Highlands
- ☐ Boston Mountains
- ☐ Arkansas Valley
- ☐ Ouachita Mountains
- ☐ South Central Plains
- ☑ Mississippi Alluvial Plain
- ☐ Mississippi Valley Loess Plains

Suitable Substrate sand/clay/gravel

Description

Shell round to somewhat oblong, greatly inflated, and thin (young) to moderately thick (adults). Anterior and posterior ends rounded. Umbos greatly inflated, elevated, and turned inward. Beak

sculpture of a few faint ridges, visible only in young shells. Small posterior wing present in young mussels. Surface usually smooth and very shiny. Periostracum rayless, yellow, yellowish tan, or olive, becoming dark brown in older individuals. Length to five inches (12.7 cm). Pseudocardinal teeth thin, compressed, and elevated; two in each valve. Lateral teeth thin and greatly curved; two in the left valve, one in the right. Hinge line S-shaped. Beak cavity very deep. Nacre white, sometimes tinged with pink or salmon.

Host Fish

Freshwater Drum

Ecobasins

Mississippi River Alluvial Plain - St. Francis River

Mississippi River Alluvial Plain - White River

Habitats	Weight
Natural Glide: Headwater	Marginal
Natural Pool: Headwater - Medium - Large	Suitable
Natural Riffle: Headwater	Marginal
Natural Run: Headwater - Medium - Large	Optimal
Natural Shoal: - Medium - Large	Marginal

Problems Faced

Threat: Habitat destruction
Source: Agricultural practices

Threat: Habitat destruction
Source: Channel alteration

Threat: Habitat destruction
Source: Channel maintenance

Threat: Habitat destruction
Source: Water diversion

Threat: Hydrological alteration
Source: Channel alteration

Threat: Hydrological alteration
Source: Water diversion

Threat: Sedimentation
Source: Agricultural practices

Threat: Sedimentation
Source: Channel maintenance

Threat: Sedimentation
Source: Road construction

Data Gaps/Research Needs

Determine environmental stressors such as nutrient loading, toxicity to chemicals and metals, sedimentation effects, etc.
Implement research components discussed at outlined in meeting with AGFC, CoE, AHTD and FWS. Plan includes additional surveys, long term monitoring and Programmatic BA for both AHTD and CoE.

Conservation Actions

	Importance	Category
Develop an outreach program.	Low	Public Relations/Education
Develop refugium for species in a river or ditch that will not be maintained for flood control.	High	Habitat Protection
Propagate, augment and reintroduce species where appropriate.	Low	Population Management
Protect host fish and associated habitat.	Medium	Habitat Restoration/Improvement

Monitoring Strategies

Proceed with monitoring plan outlined in meeting with AGFC, CoE, AHTD and FWS. Implement research components discussed at that meeting. Plan includes additional surveys, long term monitoring and Programmatic BA for both AHTD and CoE.

Comments

Federally-listed endangered species. Often found in drainage ditches flowing into the St. Francis River. Populations have been found in the Mississippi and Ohio rivers. (AFMC 2004a, 2004b, 2004c, 2005).

Taxa Association Team and Peer Reviewers

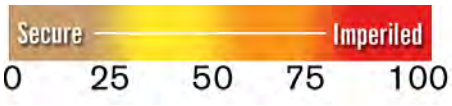
AGFC Mr. Bill Posey, USFWS-ES Mr. Chris Davidson, ASU Dr. John Harris, AHTD Mr. Josh Seagraves, AHTD Mr. Ben Thesing

Ptychobranchus occidentalis

Ouachita Kidneyshell

Class: Bivalvia
Order: Unionoida
Family: Unionidae

Priority Score: **23** **out of 100**



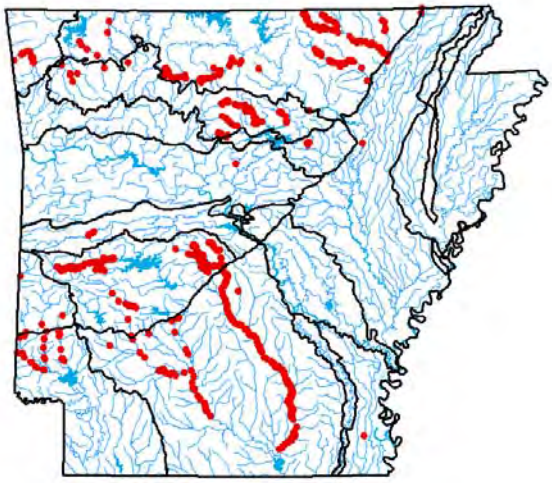
Population Trend: Unknown

Global Rank: G3G4 — Vulnerable (uncertain rank)

State Rank: S3 — Vulnerable in Arkansas

Distribution

Occurrence Records



Ecoregions where the species occurs:

- [x] Ozark Highlands
- [x] Boston Mountains
- [ ] Arkansas Valley
- [x] Ouachita Mountains
- [x] South Central Plains
- [x] Mississippi Alluvial Plain
- [ ] Mississippi Valley Loess Plains

Suitable Substrate gravel/sand

Description

Shell elongate, compressed with thick to moderately thick valves. Nacre white, pseudocardinal teeth are small and postlike, and the lateral teeth are well developed but short. Shell color yellow to tan to

brown with very fine, wavy green rays over most of the shell. Maximum length six inches.

Host Fish

Greenside Darter, Rainbow Darter, Yoke Darter, Orangethroat Darter

Ecobasins

Boston Mountains - White River
Mississippi River Alluvial Plain - White River
Mississippi River Alluvial Plain (Lake Chicot) - Mississippi River
Ouachita Mountains - Arkansas River
Ouachita Mountains - Ouachita River
Ouachita Mountains - Red River
Ozark Highlands - Arkansas River
Ozark Highlands - White River
South Central Plains - Ouachita River
South Central Plains - Red River

Habitats

	Weight
Natural Glide: Headwater	Optimal
Natural Pool: - Medium - Large	Suitable
Natural Riffle: Headwater - Medium	Optimal
Natural Run: Headwater - Medium - Large	Optimal
Natural Shoal: - Medium - Large	Suitable

Problems Faced

Threat: Habitat destruction Source: Channel alteration
Threat: Habitat destruction Source: Channel maintenance
Threat: Habitat destruction Source: Dam
Threat: Hydrological alteration Source: Dam
Threat: Nutrient loading Source: Confined animal operations
Threat: Nutrient loading Source: Grazing

Data Gaps/Research Needs

Conduct additional genetic analysis of Ouachita River and Red River populations.

Conduct life history study.

Review taxonomic status based on results of Roe 2013.

Conservation Actions

	Importance	Category
Maintain stability of riffle/run habitats in medium-sized rivers.	Medium	Habitat Protection

Monitoring Strategies

Additional information is needed before a monitoring strategy can be developed.

Comments

Common in the upper Ouachita River. May be two different species, one in the Ouachita, Red, and Arkansas river drainages with another in the White River drainage. In recent years, this species has been found in reduced numbers (AFMC 2004a, 2004b, 2004c, 2005, AGFC 2003, AHTD 1984, 1989, 1994, ANHI 2003, Bates and Dennis 1983, Branson 1973, 1984, Burns and McDonnell 1992, 1992a, Call 1895, Clark 1987, Coker 1919, Crump 2003, Crump and others 2003a, 2003c, 2003d, 2003e, 2003g, 2003q, 2003r, 2003t, Cummings and Mayer 1992, Davidson 1997, Davidson and Gosse 2001, Davidson and others 1997, 2000, Gordon 1980, 1980a, 1982, Gordon and Brown 1980, Gordon and others 1979, 1980, Harris 1991a, 1991b, 1992a, 1993, 1994a, 1996, 1997b, 1999, 1999a, 2001, 2002, Harris and Doster 1992, Harris and Gordon 1988, 1990, Harris and Milam 2002, Harris and others 1997, Johnson 1980, Meek and Clark 1912, Mehlhop-Cifelli and Miller 1989, Miller and Harris 1987, Oesch 1995, ONHI 2003, Posey 1997, Rust 1993, Stansbery and Stein 1982, Stoeckel and others 2000, Turgeon and others 1988, 1998, Vaughn 1996, Vaughn and others 1993, 1996, 1997, Vaughn and Spooner 2000, USDA FS 1999, Warren 1991, Wheeler 1918, Williams & others 1993.).

Taxa Association Team and Peer Reviewers

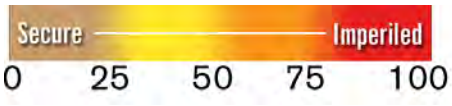
AGFC Mr. Bill Posey, USFWS-ES Mr. Chris Davidson, ASU Dr. John Harris, AHTD Mr. Josh Seagraves, AHTD Mr. Ben Thesing

Quadrula apiculata

Southern Mapleleaf

Class: Bivalvia
Order: Unionoida
Family: Unionidae

Priority Score: **15** **out of 100**



Population Trend: Unknown

Global Rank: G5 — Secure

State Rank: S3 — Vulnerable in Arkansas

Distribution

Occurrence Records

Ecoregions where the species occurs:

- ☐ Ozark Highlands
- ☐ Boston Mountains
- ☐ Arkansas Valley
- ☐ Ouachita Mountains
- ☑ South Central Plains
- ☑ Mississippi Alluvial Plain
- ☐ Mississippi Valley Loess Plains

Suitable Substrate gravel/cobble/sand

Description

Shell subrhomboid, rather short, slightly inequilateral, subsolid to solid; beaks high, moderately full; posterior ridge well developed, narrowly rounded, angled or showing a tendency to be double, ending

in a point or feeble biangulation at the base; anterior end rounded, sometimes obliquely truncated above, surface covered with fine, close pustules, which are often laid down in zigzag patterns; epidermis greenish in young shells, ashy-brown in old ones. Pseudocardinals, radial, somewhat split; lateral of right valve double; beak cavities moderately deep, nacre white.

Host Fish

Unknown

Ecobasins

Mississippi River Alluvial Plain - St. Francis River
Mississippi River Alluvial Plain - White River
Mississippi River Alluvial Plain (Bayou Bartholomew) - Ouachita River
South Central Plains - Ouachita River
South Central Plains - Red River

Habitats

	Weight
Natural Pool: Headwater - Medium - Large	Suitable
Natural Run: Headwater - Medium - Large	Optimal
Natural Shoal: - Medium - Large	Suitable

Problems Faced

Threat: Habitat destruction Source: Channel alteration
Threat: Habitat destruction Source: Channel maintenance
Threat: Habitat destruction Source: Dam
Threat: Hydrological alteration Source: Dam
Threat: Sedimentation Source: Agricultural practices
Threat: Sedimentation Source: Channel maintenance
Threat: Sedimentation Source: Forestry activities
Threat: Sedimentation Source: Road construction

Data Gaps/Research Needs

Conduct genetic analysis of Quadrula to determine if species is present in state. Reanalyze distribution and abundance of species based on results of genetic work.

Conduct life history study.

Conservation Actions

	Importance	Category
Manage watershed, addressing physical, chemical, biological and land use components, to restore or sustain aquatic life.	Medium	Threat Abatement

Monitoring Strategies

Additional information is needed before a monitoring strategy can be developed.

Comments

Often confused with Quadrula quadrula (mapleleaf) because of similarity of appearance. First recognized in Arkansas in 1996 (AFMC 2004a, 2004b, 2004c, 2005, Posey and others 1996).

Taxa Association Team and Peer Reviewers

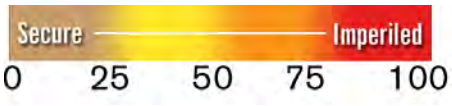
AGFC Mr. Bill Posey, USFWS-ES Mr. Chris Davidson, ASU Dr. John Harris, AHTD Mr. Josh Seagraves, AHTD Mr. Ben Thesing

Quadrula cylindrica cylindrica

Rabbitsfoot

Class: Bivalvia
Order: Unionoida
Family: Unionidae

Priority Score: **52** **out of 100**



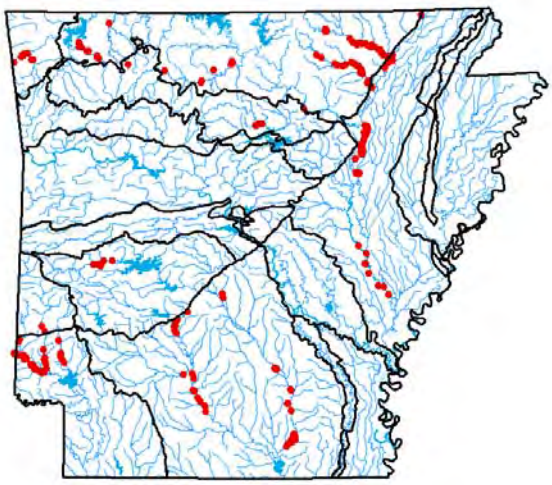
Population Trend: Decreasing

Global Rank: G3G4T3 — Vulnerable (vulnerable subspecies)

State Rank: S3 — Vulnerable in Arkansas

Distribution

Occurrence Records



Ecoregions where the species occurs:

- [x] Ozark Highlands
- [x] Boston Mountains
- [ ] Arkansas Valley
- [x] Ouachita Mountains
- [x] South Central Plains
- [x] Mississippi Alluvial Plain
- [ ] Mississippi Valley Loess Plains

Suitable Substrate gravel/sand

Description

Shell rectangular, elongate (about three times as long as high), thick, and compressed to moderately inflated. Anterior end rounded, posterior end squared or truncated. Dorsal and ventral margins

parallel. Umbos low, only slightly elevated above the hinge line. Beak sculpture consists of two rows of knobs or ridges that continue down the lateral surface of the shell. Surface of the shell usually rough, with numerous tubercles on the anterior end and a series of large pustules or knobs along the posterior ridge. Periostracum green or light brown (darker in older shells) with yellow zigzag or chevron-shaped markings on the shell. Length to five inches (12.7 cm). Pseudocardinal teeth serrated and well developed; two in the left valve, one in the right. Lateral teeth very long and straight; two in the left valve, one in the right. Beak cavity deep. Nacre pearly white, iridescent posteriorly.

Host Fish

Whitefin Shiner, Spottail Shiner, Bigeye Chub

Ecobasins

Boston Mountains - White River
Mississippi River Alluvial Plain - White River
Ouachita Mountains - Ouachita River
Ouachita Mountains - Red River
Ozark Highlands - Arkansas River
Ozark Highlands - White River
South Central Plains - Ouachita River
South Central Plains - Red River

Habitats

	Weight
Natural Glide: Headwater	Marginal
Natural Pool: - Medium - Large	Suitable
Natural Riffle: Headwater	Suitable
Natural Run: Headwater - Medium - Large	Optimal
Natural Slough: - Medium - Large	Marginal

Problems Faced

Threat: Habitat destruction
Source: Channel alteration

Threat: Habitat destruction
Source: Channel maintenance

Threat: Habitat destruction
Source: Dam

Threat: Habitat destruction
Source: Resource extraction

Threat: Habitat destruction
Source: Water diversion

Threat: Nutrient loading
Source: Confined animal operations

Threat: Nutrient loading
Source: Grazing/Browsing

Threat: Sedimentation
Source: Agricultural practices

Threat: Sedimentation
Source: Channel alteration

Threat: Sedimentation
Source: Channel maintenance

Threat: Sedimentation
Source: Dam

Threat: Sedimentation
Source: Forestry activities

Threat: Sedimentation
Source: Grazing/Browsing

Threat: Sedimentation
Source: Resource extraction

Threat: Sedimentation
Source: Road construction

Data Gaps/Research Needs

Conduct status survey.

Conservation Actions

	Importance	Category
Ensure stability and availability of fish hosts in populations in the Black and Ouachita rivers.	Medium	Habitat Protection

Monitoring Strategies

Continue to monitor occurrence in ongoing river surveys.

Comments

This species was federally listed as threatened in 2013. Widespread but uncommon and is declining in small/medium streams. The life history is now better understood, and host fish have been identified for three different populations, two of which occur in the Black/Spring River and Little River (Fobian 2007).

(AFMC 2004a, 2004b, 2004c, 2005, AGFC 2003, ANHI 2003, Bates and Dennis 1983, Branson 1973, 1982, Call 1895, Christian 1995, Clark 1985, 1987, Crump 2003, Crump and others 2003a, 2003c, 2003d, 2003e, 2003g, 2003q, 2003r, 2003t, Cummings and Mayer 1992, Davidson 1997, Ecological Consultants 1984, Gordon 1980a, 1982, Gordon and Brown 1980, Gordon and others 1979, 1980, Harris 1987, 1992a, 1996, 1997b, 1997c, 1999, 1999a, Harris and Gordon 1987, 1988, Harris and Milam 2002, 2002a, Harris and others 1997, Johnson 1980, Kraemer and Gordon, Meek and Clark 1912, Miller and Harris 1987, Oesch 1995, ONHI 2003, Posey 1997, Rust 1993, Stansbery 1970, Stansbery and Stein 1982, Stein and Stansbery 1980, Turgeon and others 1988, 1998, Vaughn 1996, Vaughn and others 1997, Vaughn and Spooner 2000, USDA FS 1999, Wheeler 1918, Williams & others 1993).

Taxa Association Team and Peer Reviewers

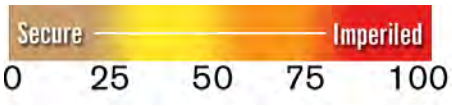
AGFC Mr. Bill Posey, USFWS-ES Mr. Chris Davidson, ASU Dr. John Harris, AHTD Mr. Josh Seagraves, AHTD Mr. Ben Thesing

Quadrula fragosa

Winged Mapleleaf

Class: Bivalvia
Order: Unionoida
Family: Unionidae

Priority Score: **80** out of 100



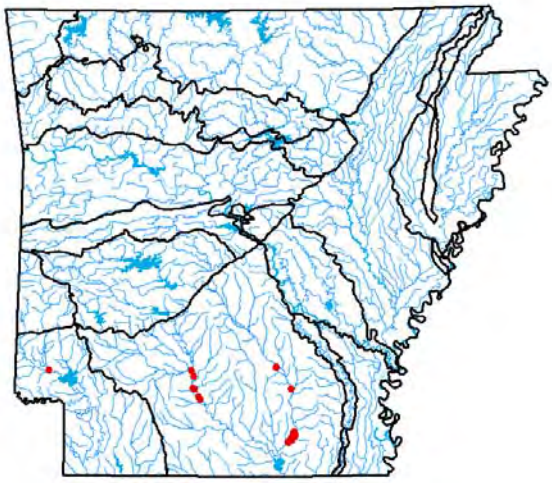
Population Trend: Unknown

Global Rank: G1 — Critically imperiled species

State Rank: S1 — Critically imperiled in Arkansas

Distribution

Occurrence Records



Ecoregions where the species occurs:

- ☐ Ozark Highlands
- ☐ Boston Mountains
- ☐ Arkansas Valley
- ☐ Ouachita Mountains
- ☑ South Central Plains
- ☐ Mississippi Alluvial Plain
- ☐ Mississippi Valley Loess Plains

Suitable Substrate gravel

Description

Shell quadrate or square, thick, and moderately inflated. Anterior end rounded, posterior end squared or truncated. Dorsal margin straight, ventral margin curved in the anterior half, arched posteriorly. A

pronounced wing present posterior to the umbo, with radiating rows of pustules or ridges. Umbos small and elevated above the hinge line. Beak sculpture of two rows of raised bumps or nodules that continue downward on the surface of the shell, separated by a furrow or sulcus. Periostracum variable, from yellowish green to light brown with faint rays in small shells, becoming greenish brown, chestnut, or dark brown in larger individuals. Length to four inches (10.2 cm). Pseudocardinal teeth well developed, serrated; two in the left valve, one in the right. Lateral teeth striated, fairly long, and straight; two in the left valve, one in the right. Beak cavity very deep. Nacre pearly white, iridescent posteriorly.

Host Fish

Channel Catfish, Blue Catfish

Ecobasins

South Central Plains - Ouachita River

Habitats	Weight
Natural Pool: - Medium - Large	Suitable
Natural Run: - Medium - Large	Optimal
Natural Shoal: - Medium - Large	Suitable

Problems Faced

Threat: Habitat destruction
Source: Channel alteration

Threat: Habitat destruction
Source: Channel maintenance

Threat: Habitat destruction
Source: Dam

Threat: Hydrological alteration
Source: Dam

Threat: Sedimentation
Source: Agricultural practices

Threat: Sedimentation
Source: Channel maintenance

Threat: Sedimentation
Source: Forestry activities

Threat: Sedimentation
Source: Road construction

Data Gaps/Research Needs

Conduct life history study.
Conduct status survey.
Determine environmental stressors such as nutrient loading, toxicity to chemicals and metals, sedimentation effects, etc.
Population estimates needed in additional Saline and Ouachita River beds.

Conservation Actions

	Importance	Category
Develop an outreach program.	Medium	Public Relations/Education
Maintain stability of Ouachita River and Saline River beds known to be occupied by species.	High	Habitat Protection
Propagate, augment and reintroduce species where appropriate.	Low	Population Management

Monitoring Strategies

Survey in accordance with U.S. Fish and Wildlife Service recovery plan.

Comments

Federally-listed endangered. Originally found in the Ouachita River in 1994. Populations were discovered so recently that it is difficult to determine trends, but the low numbers of individuals and limited distribution indicate that the populations are in a precarious viability position. There is some evidence of recruitment in the Ouachita River near Camden, Ark. Recent surveys indicates populations in the lower Saline River. Other confirmed populations include the St. Croix River, Wisconsin, Bourbeuse River, Missouri, Cossatot River in Arkansas and Little River in Arkansas and Oklahoma. (AFMC 2004a, 2004b, 2004c, 2005, AGFC 2003, ANHI 2003, Clark 1987, Coker 1919, Crump 2003, Crump and others 2003a, 2003c, 2003d, 2003e, 2003g, 2003q, 2003r, 2003t, Cummings and Mayer 1992, Davidson 1997, Davidson and Clem 2004, Harris 1999, 1999a, Harris and others 1997, Mehlhop-Cifelli and Miller 1989, ONHI 2003, Posey and others 1996, Turgeon and others 1988, 1998, USDA FS 1999, Williams & others 1993).

Taxa Association Team and Peer Reviewers

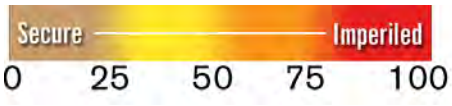
AGFC Mr. Bill Posey, USFWS-ES Mr. Chris Davidson, ASU Dr. John Harris, AHTD Mr. Josh Seagraves, AHTD Mr. Ben Thesing

Quadrula nobilis

Gulf Mapleleaf

Class: Bivalvia
Order: Unionoida
Family: Unionidae

Priority Score: **19** **out of 100**



Population Trend: Unknown

Global Rank: G4 — Apparently secure species

State Rank: S3 — Vulnerable in Arkansas

Distribution

Occurrence Records

Ecoregions where the species occurs:

- ☐ Ozark Highlands
- ☑ Boston Mountains
- ☐ Arkansas Valley
- ☐ Ouachita Mountains
- ☑ South Central Plains
- ☑ Mississippi Alluvial Plain
- ☐ Mississippi Valley Loess Plains

Suitable Substrate

Description

Host Fish

Quadrula nobilis
Gulf Mapleleaf

Channel Catfish, Flathead Catfish

Ecobasins

Boston Mountains - Arkansas River

Mississippi River Alluvial Plain - St. Francis River

South Central Plains - Ouachita River

South Central Plains - Red River

Habitats	Weight
Natural Glide: - Small - Medium - Large	Suitable
Natural Pool: - Small - Medium - Large	Suitable
Natural Riffle: - Small - Medium - Large	Suitable
Natural Run: - Small - Medium - Large	Optimal

Problems Faced

Threat:
Source:

Data Gaps/Research Needs

Conduct genetic analysis of Quadrula to determine if species is present in state. Reanalyze distribution and population numbers.

Conduct life history study.

Determine habitat preferences.

Determine problems faced and sources of problems faced.

Conservation Actions	Importance	Category
Manage watershed, addressing physical, chemical, biological and land use components, to restore or sustain aquatic life.	Medium	Threat Abatement

Monitoring Strategies

More information is needed before a monitoring strategy can be developed.

Comments

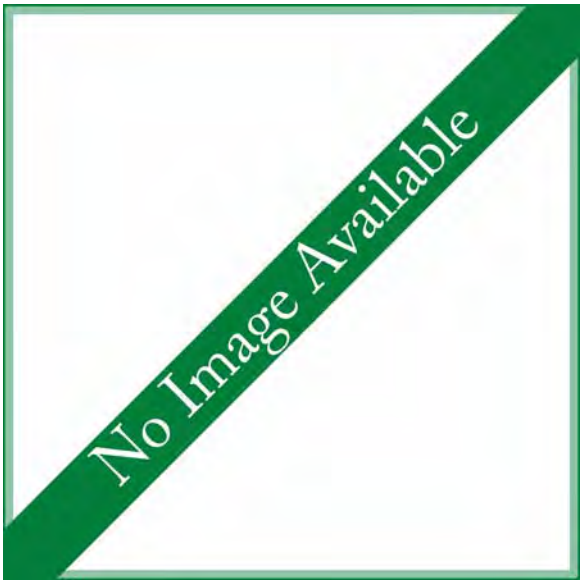
Taxonomic confusion exists with this species. Only recently recognized in Arkansas (AFMC 2004a, 2004b, 2004c, 2005).

Taxa Association Team and Peer Reviewers

AGFC Mr. Bill Posey, USFWS-ES Mr. Chris Davidson, ASU Dr. John Harris, AHTD Mr. Josh Seagraves, AHTD Mr. Ben Thesing

Quadrula refulgens

Purple Pimpleback

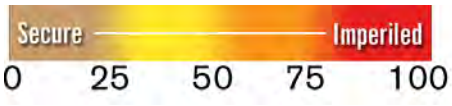


Class: Bivalvia

Order: Unionoida

Family: Unionidae

Priority Score: **31** **out of 100**



Population Trend: Stable

Global Rank: G3G4 — Vulnerable (uncertain rank)

State Rank: S1 — Critically imperiled in Arkansas

Distribution

Occurrence Records

Ecoregions where the species occurs:

- ☐ Ozark Highlands
- ☐ Boston Mountains
- ☐ Arkansas Valley
- ☐ Ouachita Mountains
- ☑ South Central Plains
- ☐ Mississippi Alluvial Plain
- ☐ Mississippi Valley Loess Plains

Suitable Substrate gravel/sand

Description

Shell subelliptical, subcompressed to slightly inflated, somewhat inequilateral;Umbos elevated but not inflated; anterior end rounded Periostracum reddish-chestnut;pseudocardinals triangular, ragged,

two in the left valve and three in the right; lateral in the right valve single or double; beak cavities deep. Nacre purple or violet, iridescent posteriorly in some specimens, white in others with some purple in the beak cavity.

Host Fish

Unknown

Ecobasins

Mississippi River Alluvial Plain (Lake Chicot) - Mississippi River

Habitats	Weight
Natural Pool: - Medium	Marginal
Natural Run: - Medium	Optimal

Problems Faced

Threat: Habitat destruction
Source: Channel alteration

Threat: Habitat destruction
Source: Channel maintenance

Threat: Habitat destruction
Source: Dam

Threat: Hydrological alteration
Source: Dam

Threat: Nutrient loading
Source: Agricultural practices

Data Gaps/Research Needs

Conduct genetic analysis of Quadrula to determine species extent.

Conduct life history study.

Survey additional localities in Southeast Arkansas to determine species' geographic extent.

Conservation Actions	Importance	Category
Manage watershed, addressing physical, chemical, biological and land use components, to restore or sustain aquatic life.	Medium	Threat Abatement

Monitoring Strategies

Continue to monitor occurrence in ongoing river surveys.

Comments

Only one specimen confirmed in Arkansas but likely others have been undetected due to similarity of appearance with Pimpleback (Quadrula pustulosa). (Turgeon and others 1998, Harris and others 2013)

Taxa Association Team and Peer Reviewers

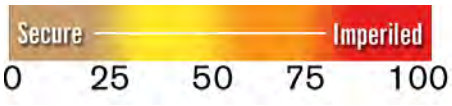
AGFC Mr. Bill Posey, USFWS-ES Mr. Chris Davidson, ASU Dr. John Harris, AHTD Mr. Josh Seagraves, AHTD Mr. Ben Thesing

Simpsonaias ambigua

Salamander Mussel

Class: Bivalvia
Order: Unionoida
Family: Unionidae

Priority Score: **34** **out of 100**



Population Trend: Unknown

Global Rank: G3 — Vulnerable species

State Rank: S1 — Critically imperiled in Arkansas

Distribution

Occurrence Records

Ecoregions where the species occurs:

- [x] Ozark Highlands
- [x] Boston Mountains
- [ ] Arkansas Valley
- [ ] Ouachita Mountains
- [ ] South Central Plains
- [x] Mississippi Alluvial Plain
- [ ] Mississippi Valley Loess Plains

Suitable Substrate ?

Description

Shell small, thin, elongate elliptical or oval, and compressed (male) to slightly inflated posteriorly (female). Anterior and posterior ends rounded. Posterior ridge rounded. Dorsal and ventral margins

straight, parallel. Umbos slightly elevated above the hinge line. Beak sculpture of three or four double-looped bars. Shell smooth, dull, yellowish tan to dark brown, and rayless. Length to two inches (5.1 cm). Pseudocardinal teeth very small, low, rounded; one in each valve. Lateral teeth absent. Beak cavity shallow. Nacre bluish white, occasionally tinged with salmon near the beaks, iridescent on the posterior half.

Host Fish

Mudpuppy Salamander

Ecobasins

Boston Mountains - White River

Mississippi River Alluvial Plain - White River

Ozark Highlands - White River

Habitats

	Weight
Natural :	Data Gap

Problems Faced

Threat:
Source:

Data Gaps/Research Needs

Conduct genetic studies to determine if populations differ between streams.

Conduct life history study.

Determine habitat preferences.

Determine problems faced and sources of problems faced.

Survey Spring River for occurrences.

Conservation Actions

	Importance	Category
Protect Spring River populations and ensure adequate host populations (mudpuppy).	High	Habitat Protection

Monitoring Strategies

Additional information is needed before a monitoring strategy can be developed.

Comments

Restricted and rare in Arkansas (AFMC 2004a, 2004b, 2004c, 2005). Habitat preference is silt/sand beneath large rocks.

Taxa Association Team and Peer Reviewers

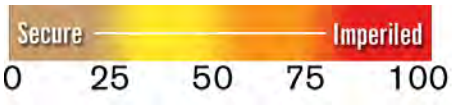
AGFC Mr. Bill Posey, USFWS-ES Mr. Chris Davidson, ASU Dr. John Harris, AHTD Mr. Josh Seagraves, AHTD Mr. Ben Thesing

Toxolasma lividum

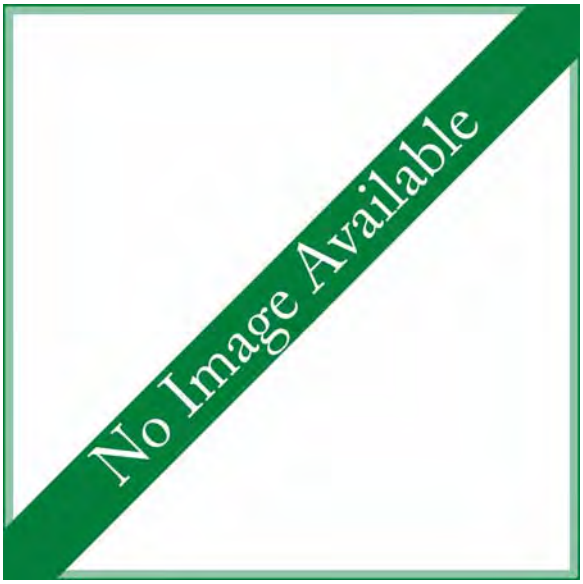
Purple Lilliput

Class: Bivalvia
Order: Unionoida
Family: Unionidae

Priority Score: **33** **out of 100**



Population Trend: Decreasing

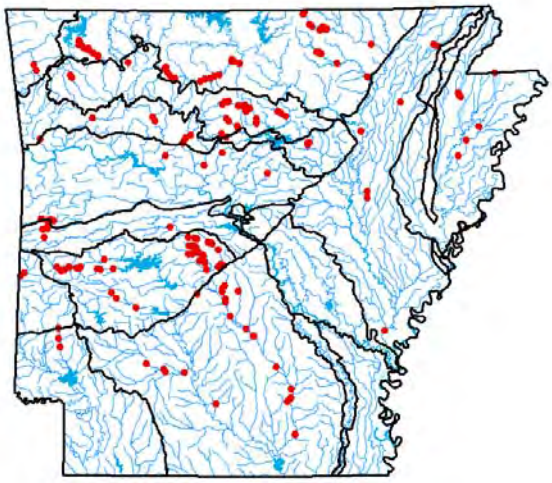


Global Rank: G3Q — Vulnerable (questionable taxonomy)

State Rank: S3 — Vulnerable in Arkansas

Distribution

Occurrence Records



Ecoregions where the species occurs:

- [x] Ozark Highlands
- [x] Boston Mountains
- [x] Arkansas Valley
- [x] Ouachita Mountains
- [x] South Central Plains
- [x] Mississippi Alluvial Plain
- [ ] Mississippi Valley Loess Plains

Suitable Substrate gravel/cobble

Description

Shell small, rounded to somewhat oblong, relatively solid, and inflated. Anterior end rounded, posterior end bluntly pointed (males) or truncated (females). Umbos inflated and slightly elevated

above the hinge line. Beak sculpture of three or four heavy bars. Periostracum tan or dark green to dark brown, becoming black in older shells. Length to one inch (2.5,cm). Pseudocardinal teeth well developed, elevated and serrated; two in the left valve, one in the right. Lateral teeth straight to slightly curved; two in the left valve, one in the right. Beak cavity variable from very shallow to moderately deep. Nacre purple, usually lighter near the ventral margin, and iridescent.

Host Fish

Green Sunfish, Longear Sunfish

Ecobasins

Arkansas Valley - Arkansas River
Boston Mountains - Arkansas River
Boston Mountains - White River
Mississippi River Alluvial Plain - St. Francis River
Mississippi River Alluvial Plain - White River
Ouachita Mountains - Arkansas River
Ouachita Mountains - Ouachita River
Ouachita Mountains - Red River
Ozark Highlands - Arkansas River
Ozark Highlands - White River
South Central Plains - Ouachita River

Habitats

	Weight
Natural Pool: Headwater - Small - Medium	Suitable
Natural Run: Headwater - Small - Medium	Optimal

Problems Faced

Threat: Habitat destruction
Source: Dam

Threat: Habitat destruction
Source: Grazing/Browsing

Threat: Habitat destruction
Source: Resource extraction

Threat: Nutrient loading
Source: Confined animal operations

Threat: Nutrient loading
Source: Grazing/Browsing

Threat: Sedimentation
Source: Forestry activities

Threat: Sedimentation
Source: Grazing/Browsing

Threat: Sedimentation
Source: Resource extraction

Threat: Sedimentation
Source: Road construction

Data Gaps/Research Needs

Conduct genetic analysis and comparison of White River and Ouachita River watershed populations.

Conduct life history study.

Conduct status survey.

Conservation Actions

	Importance	Category
Manage watershed, addressing physical, chemical, biological and land use components, to restore or sustain aquatic life.	Medium	Threat Abatement

Monitoring Strategies

Continue to monitor occurrence in ongoing river surveys.

Comments

Widespread but uncommon, usually found in the headwaters to medium rivers. Population numbers appear to be very low (AFMC 2004a, 2004b, 2004c, 2005, AGFC 2003, ANHI 2003, Bates and Dennis 1983, Branson 1984, Brown and Brown 1989, Burns and McDonnell 1992a, Crump 2003, Crump and others 2003a, 2003c, 2003d, 2003e, 2003g, 2003q, 2003r, 2003t, Cummings and Mayer 1992, Davidson 1997, Davidson and others 2000, Ecological Consultants 1984, Gordon 1980, 1980a, 1982, Gordon and Brown 1980, Gordon and others 1979, 1980, Harris 1991d, 1992b, 1994b, 1996, 1997b, 1999, 1999a, Harris and Gordon 1988, 1990, Harris and Milam 2002, Harris and others 1997, Jenkinson and Ahlstedt 1987, Johnson 1980, Meek and Clark 1912, Oesch 1995, ONHI 2003, Posey 1997, Rust 1993, Stansbery 1970, Turgeon and others 1988, 1998, Wheeler 1918, Williams & others 1993).

Taxa Association Team and Peer Reviewers

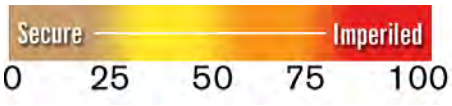
AGFC Mr. Bill Posey, USFWS-ES Mr. Chris Davidson, ASU Dr. John Harris, AHTD Mr. Josh Seagraves, AHTD Mr. Ben Thesing

Toxolasma parvum

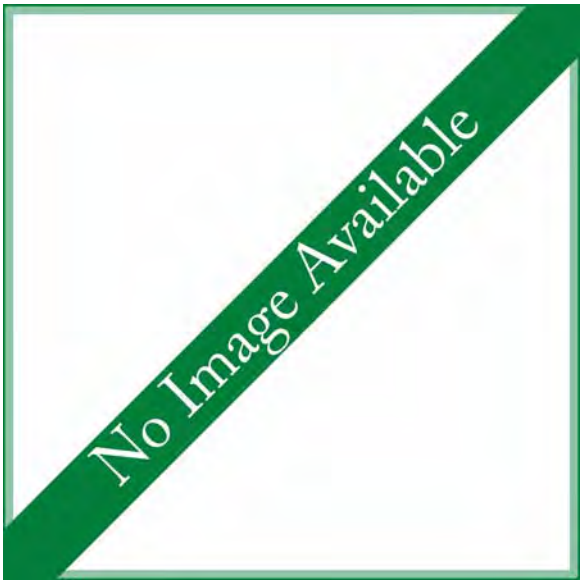
Lilliput

Class: Bivalvia
Order: Unionoida
Family: Unionidae

Priority Score: **19** **out of 100**



Population Trend: Decreasing

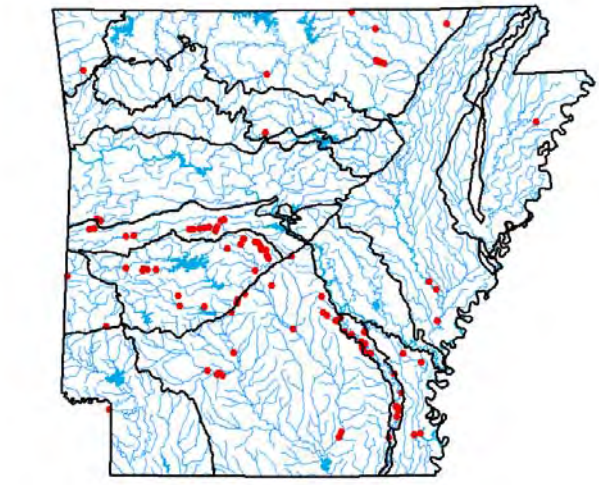


Global Rank: G5 — Secure

State Rank: S3 — Vulnerable in Arkansas

Distribution

Occurrence Records



Ecoregions where the species occurs:

- [x] Ozark Highlands
- [x] Boston Mountains
- [x] Arkansas Valley
- [x] Ouachita Mountains
- [x] South Central Plains
- [x] Mississippi Alluvial Plain
- [ ] Mississippi Valley Loess Plains

Suitable Substrate gravel/cobble

Description

Shell small, elliptical or cylindrical, relatively solid, and inflated. Anterior and posterior ends rounded. Umbos inflated and slightly elevated above the hinge line. Beak sculpture consists of five or six

distinct angled ridges. Surface of the shell with a clothlike texture, dark green, brown, or dark brown and rayless. Length to 1.5 inches (3.8 cm). Pseudocardinal teeth thin, elevated, compressed, and serrated; two in the left valve, one or two in the right. Lateral teeth long, thin and straight; two in the left valve, one in the right. Beak cavity moderately deep. Nacre silvery or bluish white and highly iridescent.

Host Fish

Green Sunfish, Warmouth, Orange Spotted Sunfish, Bluegill, White Crappie

Ecobasins

Arkansas Valley - Arkansas River
Boston Mountains - White River
Mississippi River Alluvial Plain - St. Francis River
Mississippi River Alluvial Plain - White River
Ouachita Mountains - Arkansas River
Ouachita Mountains - Ouachita River
Ouachita Mountains - Red River
Ozark Highlands - Arkansas River
Ozark Highlands - White River
South Central Plains - Ouachita River
South Central Plains - Red River

Habitats

	Weight
Natural Pool: Headwater - Small - Medium	Suitable
Natural Run: Headwater - Small - Medium	Optimal

Problems Faced

Threat: Habitat destruction
Source: Dam

Threat: Habitat destruction
Source: Grazing/Browsing

Threat: Habitat destruction
Source: Resource extraction

Threat: Nutrient loading
Source: Confined animal operations

Threat: Nutrient loading
Source: Grazing/Browsing

Threat: Sedimentation
Source: Forestry activities

Threat: Sedimentation
Source: Grazing/Browsing

Threat: Sedimentation
Source: Resource extraction

Threat: Sedimentation
Source: Road construction

Data Gaps/Research Needs

Conduct genetic analysis and comparison of White River, Arkansas River and Ouachita River watershed populations.

Conduct life history study.

Conduct status survey.

Conservation Actions

	Importance	Category
Manage watershed, addressing physical, chemical, biological and land use components, to restore or sustain aquatic life.	Medium	Threat Abatement

Monitoring Strategies

Continue to monitor occurrence in ongoing river surveys.

Comments

Widespread but uncommon, usually found in backwaters and headwaters. Population numbers are unknown. (AFMC 2015)

Taxa Association Team and Peer Reviewers

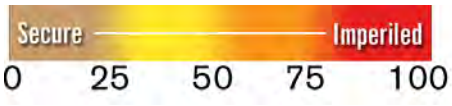
AGFC Mr. Bill Posey, USFWS-ES Mr. Chris Davidson, ASU Dr. John Harris, AHTD Mr. Josh Seagraves, AHTD Mr. Ben Thesing

Toxolasma texasiense

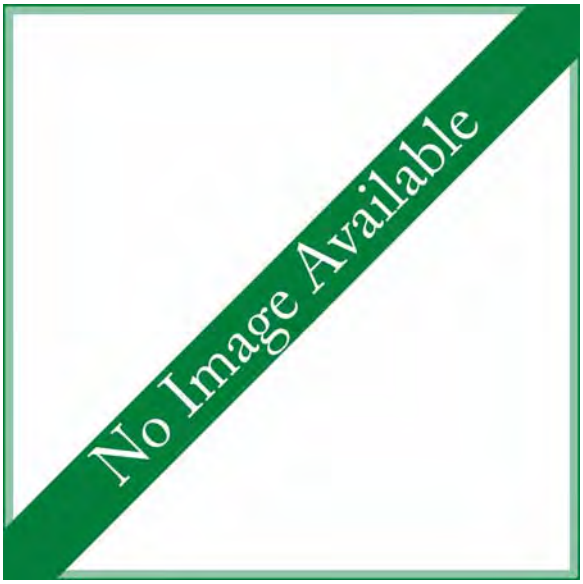
Texas Lilliput

Class: Bivalvia
Order: Unionoida
Family: Unionidae

Priority Score: **19** **out of 100**



Population Trend: Unknown



Global Rank: G4 — Apparently secure species

State Rank: S3 — Vulnerable in Arkansas

Distribution

Occurrence Records

Ecoregions where the species occurs:

- ☐ Ozark Highlands
- ☐ Boston Mountains
- ☐ Arkansas Valley
- ☑ Ouachita Mountains
- ☑ South Central Plains
- ☑ Mississippi Alluvial Plain
- ☐ Mississippi Valley Loess Plains

Suitable Substrate sand/silt

Description

Shell elongate, thin to relatively solid, and moderately inflated. Anterior end rounded, posterior end pointed (males) or truncated (females). Umbos even with or only slightly elevated above the hinge

line. Beak sculpture of five or six strong angular ridges. Periostracum greenish brown to black with clothlike texture. Length to 2.5 inches (6.4 cm). Pseudocardinal teeth relatively thin and compressed, elevated and serrated; two in the left valve, one in the right. Lateral teeth long, straight or curved; two in the left valve, one in the right. Beak cavity shallow. Nacre white, occasionally tinged with salmon in the beak cavity and center of the shell.

Host Fish

Bluegill, Warmouth

Ecobasins

Mississippi River Alluvial Plain - White River

Ouachita Mountains - Ouachita River

South Central Plains - Ouachita River

South Central Plains - Red River

Habitats	Weight
Man-made Littoral: - Small - Large	Suitable
Man-made Pelagic: - Small - Large	Marginal
Natural Other: - Medium - Large	Data Gap
Natural Oxbow - connected: - Medium - Large	Suitable
Natural Oxbow - disconnected:	Suitable
Natural Side channel: - Medium - Large	Suitable
Natural Slough: - Medium - Large	Suitable

Problems Faced

Threat: Biological alteration
Source: Exotic species

Threat: Biological alteration
Source: Predation

Threat: Habitat destruction
Source: Channel alteration

Threat: Habitat destruction
Source: Channel maintenance

Data Gaps/Research Needs

Conduct life history study.

Conduct status surveys.

Determine genetic relationships of populations from different streams.

Conservation Actions

Importance	Category
Medium	Threat Abatement

Manage watershed, addressing physical, chemical, biological and land use components, to restore or sustain aquatic life.

Monitoring Strategies

Continue to monitor occurrence in ongoing river surveys.

Comments

Species is probably more common than is shown by its State Rank. Often found in small, turbid streams with extremely soft substrates and along banks in larger stream which may lead to the species being overlooked during general mussel surveys (AFMC 2004a, 2004b, 2004c, 2005).

Taxa Association Team and Peer Reviewers

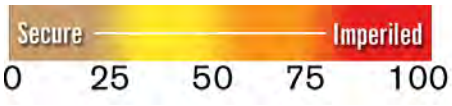
AGFC Mr. Bill Posey, USFWS-ES Mr. Chris Davidson, ASU Dr. John Harris, AHTD Mr. Josh Seagraves, AHTD Mr. Ben Thesing

Truncilla donaciformis

Fawnsfoot

Class: Bivalvia
Order: Unionoida
Family: Unionidae

Priority Score: **15** **out of 100**



Population Trend: Unknown

Global Rank: G5 — Secure

State Rank: S3 — Vulnerable in Arkansas

Distribution

Occurrence Records

Ecoregions where the species occurs:

- ☐ Ozark Highlands
- ☐ Boston Mountains
- ☑ Arkansas Valley
- ☑ Ouachita Mountains
- ☑ South Central Plains
- ☑ Mississippi Alluvial Plain
- ☐ Mississippi Valley Loess Plains

Suitable Substrate sand/gravel

Description

Shell small, elongate, somewhat oblong, relatively thin, and compressed to moderately inflated. Anterior end rounded, posterior end pointed, ventral margin smoothly rounded. Umbos full, centrally

located, and slightly elevated above the hinge line. Beak sculpture of five or six double-looped bars. Periostracum variable from yellow to greenish brown, with numerous dark green rays made up of many smaller broken, V-shaped or zigzag lines. Length to two inches (5.1 cm). Pseudocardinal teeth small, roughened, and elevated; two in the left valve, one in the right. Lateral teeth thin, relatively long, and straight to slightly curved. Beak cavity moderately shallow. Nacre white, iridescent posteriorly.

Host Fish

Freshwater Drum, Sauger

Ecobasins

Arkansas Valley - Arkansas River

Mississippi River Alluvial Plain - St. Francis River

Mississippi River Alluvial Plain - White River

Ouachita Mountains - Arkansas River

South Central Plains - Ouachita River

South Central Plains - Red River

Habitats	Weight
Natural Pool: - Medium - Large	Optimal
Natural Run: - Medium - Large	Optimal

Problems Faced

Threat: Habitat destruction
Source: Dam

Threat: Habitat destruction
Source: Grazing/Browsing

Threat: Habitat destruction
Source: Resource extraction

Threat: Sedimentation
Source: Agricultural practices

Threat: Sedimentation
Source: Dam

Threat: Sedimentation
Source: Forestry activities

Threat: Sedimentation
Source: Resource extraction

Threat: Sedimentation
Source: Road construction

Data Gaps/Research Needs

Conduct life history study.

Conduct status survey.

Conservation Actions

	Importance	Category
More data needed to determine conservation actions.	Medium	Data Gap

Monitoring Strategies

Continue to monitor occurrence in ongoing river surveys.

Comments

Widespread but uncommon. Small size may result in it being overlooked during general mussel surveys (AFMC 2004a, 2004b, 2004c, 2005).

Taxa Association Team and Peer Reviewers

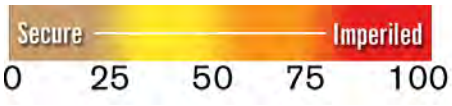
AGFC Mr. Bill Posey, USFWS-ES Mr. Chris Davidson, ASU Dr. John Harris, AHTD Mr. Josh Seagraves, AHTD Mr. Ben Thesing

Uniomerus declivis

Tapered Pondhorn

Class: Bivalvia
Order: Unionoida
Family: Unionidae

Priority Score: **19** **out of 100**



Population Trend: Unknown

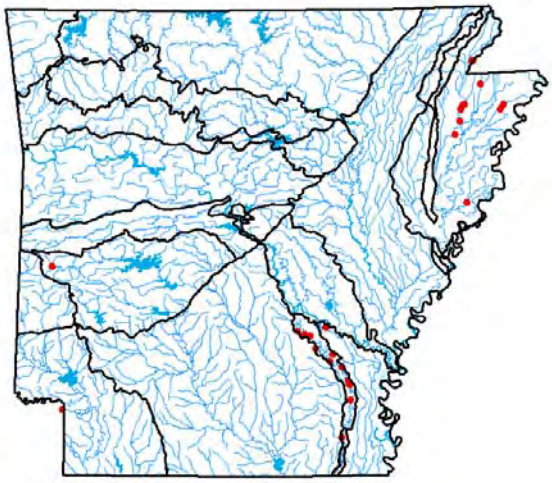

©Bill Posey

Global Rank: G5Q — Secure (questionable taxonomy)

State Rank: S2 — Imperiled in Arkansas

Distribution

Occurrence Records



Ecoregions where the species occurs:

- ☐ Ozark Highlands
- ☐ Boston Mountains
- ☐ Arkansas Valley
- ☐ Ouachita Mountains
- ☑ South Central Plains
- ☑ Mississippi Alluvial Plain
- ☐ Mississippi Valley Loess Plains

Suitable Substrate silt/sand/gravel

Description

Shell elliptical, elongate, and compressed to moderately inflated. Anterior end rounded and posterior end acutely pointed. Dorsal and ventral margins both straight. Umbos low, approximately even with

hingeline. Two shallow grooves present on posterior slope, giving rise to a short ridge. Posterior ridge prominent. Coloration yellowish brown, green, brown to black; rays generally absent. Pseudocardinal teeth small and thin; lateral teeth relatively thin, short and straight to slightly curved. Beak cavity shallow. Nacre white to occasionally salmon tinged. Maximum length to approximately six inches (15 cm).

Host Fish

Unknown

Ecobasins

Mississippi River Alluvial Plain - St. Francis River

Mississippi River Alluvial Plain (Bayou Bartholomew) - Ouachita River

South Central Plains - Red River

Habitats	Weight
Natural Riffle: Headwater - Small	Suitable
Natural Run: Headwater - Small	Suitable

Problems Faced

Threat:
Source:

Data Gaps/Research Needs

Conduct life history study.

Determine habitat preferences.

Determine problems faced and sources of problems faced.

Conservation Actions	Importance	Category
Manage watershed, addressing physical, chemical, biological and land use components, to restore or sustain aquatic life.	Medium	Threat Abatement

Monitoring Strategies

Additional information is needed before a monitoring strategy can be developed.

Comments

Species is probably more common than is shown by its State Rank. Often found in small, turbid streams with extremely soft substrates and along banks in larger stream which may lead to the species being overlooked during general mussel surveys (AFMC 2004a, 2004b, 2004c, 2005).

Taxa Association Team and Peer Reviewers

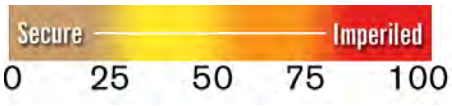
AGFC Mr. Bill Posey, USFWS-ES Mr. Chris Davidson, ASU Dr. John Harris, AHTD Mr. Josh Seagraves, AHTD Mr. Ben Thesing

Uniomerus tetralasmus

Pondhorn

Class: Bivalvia
Order: Unionoida
Family: Unionidae

Priority Score: 19 out of 100



Population Trend: Unknown

Global Rank: G5 — Secure

State Rank: S2 — Imperiled in Arkansas

Distribution

Occurrence Records

Ecoregions where the species occurs:

- ☐ Ozark Highlands
- ☑ Boston Mountains
- ☐ Arkansas Valley
- ☑ Ouachita Mountains
- ☑ South Central Plains
- ☑ Mississippi Alluvial Plain
- ☐ Mississippi Valley Loess Plains

Suitable Substrate gravel/sand

Description

Shell relatively thin, elongate, and compressed to moderately inflated. Anterior end rounded, posterior end bluntly or sharply pointed. Dorsal margin straight, ventral margin straight, rarely curved.

Umbos low, approximately even with the hinge line. Beak sculpture of four or five concentric ridges. Two shallow grooves present on the posterior slope, giving rise to a short ridge. Surface smooth and shiny in small shells, becoming rougher and dull in older individuals. Periostracum greenish or yellowish brown in young individuals, adults dark brown to black and rayless. Length to five inches (12.7 cm). Pseudocardinal teeth small and thin; two in the left valve, one in the right. Lateral teeth relatively thin, short, and straight to slightly curved. Beak cavity shallow. Nacre white, occasionally with a tinge of salmon.

Host Fish

Golden Shiner

Ecobasins

Boston Mountains - White River
Mississippi River Alluvial Plain - St. Francis River
Mississippi River Alluvial Plain - White River
Mississippi River Alluvial Plain (Lake Chicot) - Mississippi River
Ouachita Mountains - Ouachita River
South Central Plains - Ouachita River
South Central Plains - Red River

Habitats

Habitats	Weight
Man-made Littoral: - Small	Optimal
Man-made Pelagic: - Small	Marginal
Natural Other: - Medium - Large	Data Gap
Natural Oxbow - connected: - Medium - Large	Optimal
Natural Pool: Headwater - Medium - Large	Optimal
Natural Side channel: - Medium - Large	Optimal
Natural Slough: - Medium - Large	Optimal

Problems Faced

Threat: Habitat destruction Source: Grazing/Browsing
Threat: Habitat destruction Source: Resource extraction
Threat: Habitat destruction Source: Water diversion
Threat: Sedimentation Source: Agricultural practices
Threat: Sedimentation Source: Forestry activities
Threat: Sedimentation Source: Resource extraction

Uniomerus tetralasmus
Pondhorn

Data Gaps/Research Needs

Conduct life history study.

Conservation Actions

	Importance	Category
Manage watershed, addressing physical, chemical, biological and land use components, to restore or sustain aquatic life.	Medium	Threat Abatement

Monitoring Strategies

Continue to monitor occurrence in ongoing river surveys.

Comments

Species is probably more common than is shown by its State Rank. Often found in small, turbid streams with extremely soft substrates, in ponds and lakes, and along banks in larger stream which may lead to the species being overlooked during general mussel surveys (AFMC 2004a, 2004b, 2004c, 2005).

Taxa Association Team and Peer Reviewers

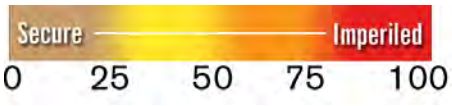
AGFC Mr. Bill Posey, USFWS-ES Mr. Chris Davidson, ASU Dr. John Harris, AHTD Mr. Josh Seagraves, AHTD Mr. Ben Thesing

Venustaconcha ellipsiformis

Ellipse

Class: Bivalvia
Order: Unionoida
Family: Unionidae

Priority Score: **23** **out of 100**



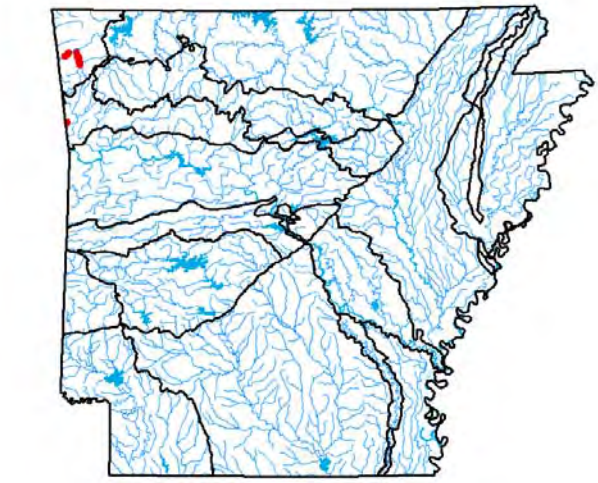
Population Trend: Unknown

Global Rank: G4 — Apparently secure species

State Rank: S2 — Imperiled in Arkansas

Distribution

Occurrence Records



Ecoregions where the species occurs:

- [x] Ozark Highlands
- [x] Boston Mountains
- [ ] Arkansas Valley
- [ ] Ouachita Mountains
- [ ] South Central Plains
- [ ] Mississippi Alluvial Plain
- [ ] Mississippi Valley Loess Plains

Suitable Substrate gravel/cobble

Description

Shell small, solid, elliptical, and compressed. Anterior end rounded, posterior end bluntly pointed. Ventral margin straight to slightly curved. Umbos only slightly elevated above the hinge line. Beak

sculpture of three or four very fine, double-looped ridges. Shell usually smooth, with a few wrinkles or folds on the posterior half in older shells. Periostracum green or greenish yellow with numerous dark green rays, becoming wavy on the posterior half of the shell. Length to three inches (7.6 cm). Pseudocardinal teeth triangular, heavy, roughened, and divergent; two in the left valve, one in the right (occasionally with a thin, ridgelike tooth in front). Lateral teeth relatively short, thick, and straight to slightly curved. Beak cavity shallow. Nacre white, iridescent posteriorly.

Host Fish

Mottled Sculpin, Slimy Sculpin, Brook Stickleback, Rainbow Darter, Iowa Darter, Johnny Darter, Logperch, Blackside Darter, Greenside Darter, Orangethroat Darter, Redfin Darter, Cardinal Shiner, Yoke Darter

Ecobasins

Boston Mountains - Arkansas River

Ozark Highlands - Arkansas River

Habitats	Weight
Natural Glide: Headwater	Suitable
Natural Pool: Headwater - Medium - Large	Suitable
Natural Riffle: Headwater - Medium - Large	Suitable
Natural Run: Headwater - Medium - Large	Optimal
Natural Shoal: - Medium - Large	Suitable

Problems Faced

Threat: Habitat destruction
Source: Dam

Threat: Habitat destruction
Source: Grazing/Browsing

Threat: Habitat destruction
Source: Resource extraction

Threat: Nutrient loading
Source: Confined animal operations

Threat: Nutrient loading
Source: Grazing/Browsing

Threat: Sedimentation
Source: Forestry activities

Threat: Sedimentation
Source: Grazing/Browsing

Threat: Sedimentation
Source: Resource extraction

Threat: Sedimentation
Source: Road construction

Data Gaps/Research Needs

Conduct life history study.

Conduct status survey.

Determine genetic relationship to Venustaconcha pleasii.

Conservation Actions

	Importance	Category
Manage watershed, addressing physical, chemical, biological and land use components, to restore or sustain aquatic life.	Medium	Threat Abatement

Monitoring Strategies

Continue to monitor occurrence in ongoing river surveys.

Comments

Only known from Illinois River and Lee Creek in Arkansas (Arkansas River drainages). (AFMC 2004a, 2004b, 2004c, 2005).

Taxa Association Team and Peer Reviewers

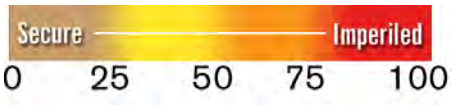
AGFC Mr. Bill Posey, USFWS-ES Mr. Chris Davidson, ASU Dr. John Harris, AHTD Mr. Josh Seagraves, AHTD Mr. Ben Thesing

Venustaconcha pleasii

Bleedingtooth Mussel

Class: Bivalvia
Order: Unionoida
Family: Unionidae

Priority Score: **23** **out of 100**



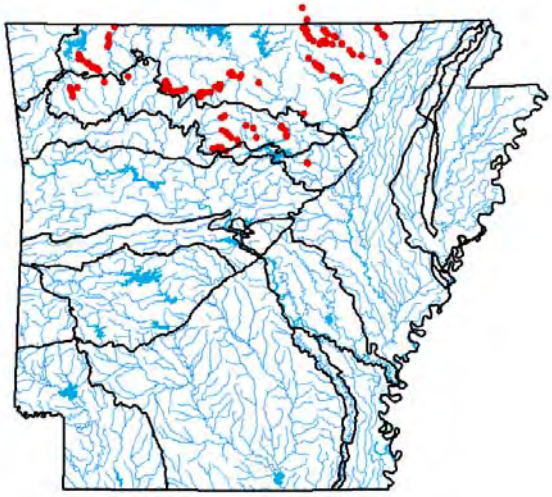
Population Trend: Unknown

Global Rank: G3G4 — Vulnerable (uncertain rank)

State Rank: S3 — Vulnerable in Arkansas

Distribution

Occurrence Records



Ecoregions where the species occurs:

- [x] Ozark Highlands
- [x] Boston Mountains
- [x] Arkansas Valley
- [ ] Ouachita Mountains
- [ ] South Central Plains
- [ ] Mississippi Alluvial Plain
- [ ] Mississippi Valley Loess Plains

Suitable Substrate cobble/gravel

Description

Similar to Venustaconcha ellipsiformis

Host Fish

Venustaconcha pleasii
Bleedingtooth Mussel

Greenside Darter, Rainbow Darter, Yoke Darter

Ecobasins

Boston Mountains - White River

Mississippi River Alluvial Plain - St. Francis River

Ozark Highlands - White River

Habitats	Weight
Natural Glide: Headwater	Suitable
Natural Pool: Headwater - Medium - Large	Suitable
Natural Riffle: Headwater - Medium - Large	Suitable
Natural Run: Headwater - Medium - Large	Optimal
Natural Shoal: - Medium - Large	Suitable

Problems Faced

Threat: Habitat destruction
Source: Dam

Threat: Habitat destruction
Source: Grazing/Browsing

Threat: Habitat destruction
Source: Resource extraction

Threat: Nutrient loading
Source: Confined animal operations

Threat: Nutrient loading
Source: Grazing/Browsing

Threat: Sedimentation
Source: Forestry activities

Threat: Sedimentation
Source: Grazing/Browsing

Threat: Sedimentation
Source: Resource extraction

Threat: Sedimentation
Source: Road construction

Data Gaps/Research Needs

Conduct life history study.

Conduct status survey.

Conservation Actions	Importance	Category
Manage watershed, addressing physical, chemical, biological and land use components, to restore or sustain aquatic life.	Medium	Threat Abatement

Monitoring Strategies

Additional information is needed before a monitoring strategy can be developed.

Comments

Widespread in the White River drainage but seldom common (AFMC 2004a, 2004b, 2004c, 2005).

Taxa Association Team and Peer Reviewers

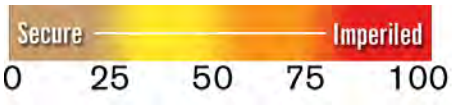
AGFC Mr. Bill Posey, USFWS-ES Mr. Chris Davidson, ASU Dr. John Harris, AHTD Mr. Josh Seagraves, AHTD Mr. Ben Thesing

Villosa iris

Rainbow

Class: Bivalvia
Order: Unionoida
Family: Unionidae

Priority Score: **15** out of 100



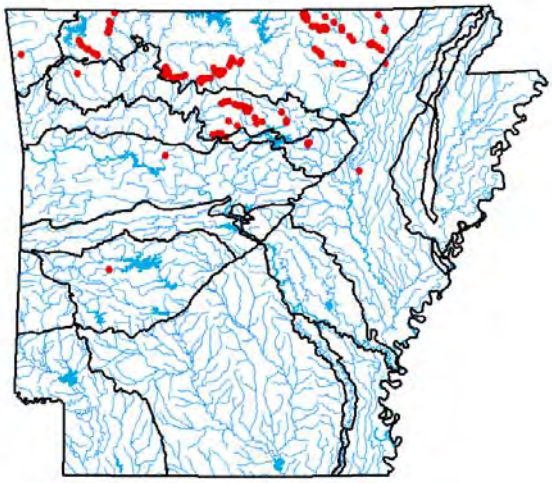
Population Trend: Unknown

Global Rank: G5Q — Secure (questionable taxonomy)

State Rank: S3 — Vulnerable in Arkansas

Distribution

Occurrence Records



Ecoregions where the species occurs:

- [x] Ozark Highlands
- [x] Boston Mountains
- [ ] Arkansas Valley
- [ ] Ouachita Mountains
- [ ] South Central Plains
- [x] Mississippi Alluvial Plain
- [ ] Mississippi Valley Loess Plains

Suitable Substrate cobble/gravel

Description

Shell small, elongate, relatively thin, and compressed (males) to moderately inflated (females). Anterior end rounded, posterior end rounded (females) to bluntly pointed (males). Umbos even with

or slightly elevated above hinge line. Beak sculpture of four to six distinct, double-looped bars. Periostracum yellow or greenish yellow, with dark green rays, often interrupted. Length to three inches (7.6 cm). Pseudocardinal teeth small, triangular, and somewhat divergent; two in the left valve, one in the right. Lateral teeth long, thin, and straight to slightly curved. Beak cavity shallow. Nacre silvery white and highly iridescent on the posterior half, giving this species its common name.

Host Fish

Streamline Chub, Greenside Darter, Rainbow Darter, Bluebreast Darter, Green Sunfish, Striped Shiner, Smallmouth Bass, Largemouth Bass, Yellow Perch, Rock Bass, Mosquito Fish, Suwannee Bass, Spotted Bass

Ecobasins

Boston Mountains - White River

Mississippi River Alluvial Plain - White River

Ozark Highlands - White River

Habitats

	Weight
Natural Glide: Headwater	Suitable
Natural Pool: Headwater - Medium - Large	Optimal
Natural Riffle: Headwater	Suitable
Natural Run: Headwater - Medium - Large	Optimal
Natural Shoal: - Medium - Large	Marginal

Problems Faced

Threat: Habitat destruction
Source: Dam

Threat: Habitat destruction
Source: Grazing/Browsing

Threat: Habitat destruction
Source: Resource extraction

Threat: Nutrient loading
Source: Confined animal operations

Threat: Nutrient loading
Source: Grazing/Browsing

Threat: Sedimentation
Source: Forestry activities

Threat: Sedimentation
Source: Grazing

Threat: Sedimentation
Source: Resource extraction

Threat: Sedimentation
Source: Road construction

Data Gaps/Research Needs

Research taxonomic relationship of two forms. Describe species, if necessary.

Review distribution and abundance based on taxonomic status or revision.

Conservation Actions

	Importance	Category
Manage watershed, addressing physical, chemical, biological and land use components, to restore or sustain aquatic life.	Medium	Threat Abatement

Monitoring Strategies

Additional information is needed before a monitoring strategy can be developed.

Comments

The status of this species is unclear due to taxonomic uncertainty. There appear to be two phylogenetic units in Arkansas (AFMC 2004a, 2004b, 2004c, 2005, AGFC 2003, AHTD 1984, ANHI 2003, Bates and Dennis 1983, Branson 1984, Clark 1987, Coker 1919, Crump 2003, Crump and others 2003a, 2003c, 2003d, 2003e, 2003g, 2003q, 2003r, 2003t, Cummings and Mayer 1992, Davidson and others 1997, Ecological Consultants 1984, Gordon 1980a, Gordon and others 1980, Harris 1991b, 1992a, 1993, 1996, 1999, Harris and Christian 2004, Harris and Gordon 1990, Harris and Milam 2002, Johnson 1980, Meek and Clark 1912, Oesch 1995, ONHI 2003, Rust 1993, Turgeon and others 1988, 1998, Vaughn 1996, Vaughn and Spooner 2000, USDA FS 1999, Warren 1991, Williams & others 1993).

Taxa Association Team and Peer Reviewers

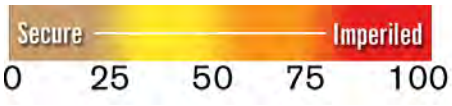
AGFC Mr. Bill Posey, USFWS-ES Mr. Chris Davidson, ASU Dr. John Harris, AHTD Mr. Josh Seagraves, AHTD Mr. Ben Thesing

Villosa sp. cf lienosa

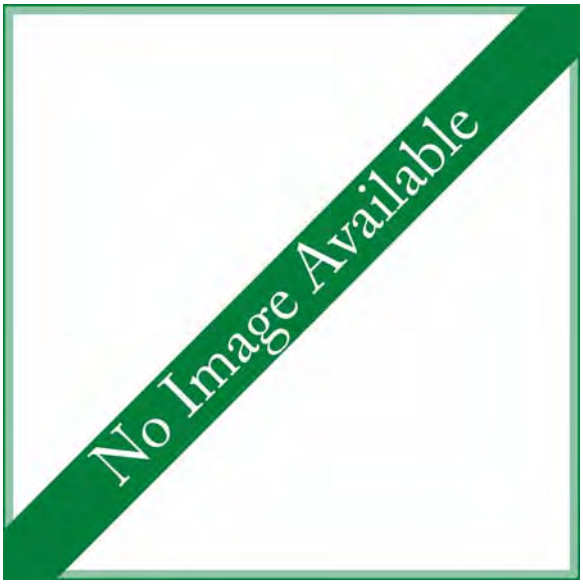
Little Spectaclecase group

Class: Bivalvia
Order: Unionoida
Family: Unionidae

Priority Score: 17 out of 100



Population Trend: Unknown



Global Rank: G5 — Secure

State Rank: S2S3 — Imperiled species in Arkansas (uncertain rank)

Distribution

Occurrence Records

Ecoregions where the species occurs:

- [x] Ozark Highlands
- [x] Boston Mountains
- [x] Arkansas Valley
- [x] Ouachita Mountains
- [x] South Central Plains
- [x] Mississippi Alluvial Plain
- [ ] Mississippi Valley Loess Plains

Suitable Substrate gravel/sand

Description

Generally for all three taxonomic entities, shell small, slightly elongate, thin to moderately thick, compressed in males and inflated in females. Anterior end rounded, posterior end bluntly pointed

(males) or truncated (females). Dorsal margin straight, ventral margin straight to slightly curved. Umbos elevated above the hinge line. Beak sculpture of four to seven distinct, double-looped bars. Periostracum green to dark brown, with green rays (often obscure). Length to 2.5 inches (6.4 cm). Pseudocardinal teeth relatively small and compressed; two in the left valve, one in the right, with a smaller tooth present anteriorly in some shells. Lateral teeth elongate, thin, and straight. Nacre white or bluish white, occasionally tinged with salmon, iridescent posteriorly.

Host Fish

Brown Bullhead, Channel Catfish, Bluegill, Largemouth Bass

Ecobasins

Arkansas Valley - Arkansas River
Boston Mountains - Arkansas River
Boston Mountains - White River
Mississippi River Alluvial Plain - St. Francis River
Mississippi River Alluvial Plain - White River
Ouachita Mountains - Arkansas River
Ouachita Mountains - Ouachita River
Ouachita Mountains - Red River
Ozark Highlands - Arkansas River
Ozark Highlands - White River
South Central Plains - Ouachita River

Habitats

	Weight
Natural Pool: Headwater - Medium - Large	Optimal
Natural Riffle: Headwater	Suitable
Natural Run: Headwater - Medium - Large	Suitable
Natural Shoal: - Medium - Large	Suitable
Natural Side channel: - Medium - Large	Suitable

Problems Faced

Threat: Habitat destruction
Source: Grazing/Browsing

Threat: Habitat destruction
Source: Resource extraction

Threat: Nutrient loading
Source: Confined animal operations

Threat: Nutrient loading
Source: Grazing/Browsing

Threat: Nutrient loading
Source: Urban development

Threat: Sedimentation
Source: Forestry activities

Threat: Sedimentation
Source: Grazing/Browsing

Threat: Sedimentation
Source: Road construction

Data Gaps/Research Needs

Conduct life history study.

Conservation Actions

	Importance	Category
Manage watershed, addressing physical, chemical, biological and land use components, to restore or sustain aquatic life.	Medium	Threat Abatement

Monitoring Strategies

More information is needed before a monitoring strategy can be developed.

Comments

Widespread but uncommon. Found in habitats not usually surveyed during general mussel surveys. Three taxonomic units may occur in Arkansas with “forms” inhabiting the Red River Basin, Ouachita River Basin and the combined Arkansas, White and St. Francis drainages. (AFMC 2004a, 2004b, 2004c, 2005, G.T. Waters pers. Comm.)

Taxa Association Team and Peer Reviewers

AGFC Mr. Bill Posey, USFWS-ES Mr. Chris Davidson, ASU Dr. John Harris, AHTD Mr. Josh Seagraves, AHTD Mr. Ben Thesing