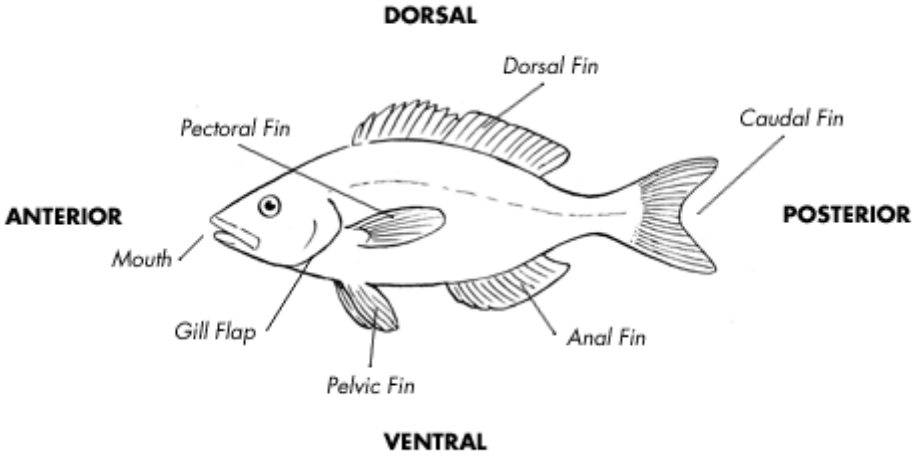
THE FISHES GATHERED IN

CHEROKEE COUNTRY

Mark A. Cantrell


DORSAL
Dorsal Fin
Pectoral Fin
Caudal Fin
ANTERIOR
POSTERIOR
Mouth
Gill Flap
Anal Fin
Pelvic Fin
VENTRAL

Foreword

Southern Appalachian Man and the Biosphere Cooperative is made up of 11 federal and 3 state natural resource agencies. The work of SAMAB is done by participating agencies, guided by an interagency Executive Committee. SAMAB promotes the wise use of the area's renewable resources; to increase environmental awareness of the general public; encourages environmentally compatible economic development; supports and encourages continuing research helpful to the maintenance and understanding of the region's resources; and embarks upon a process which ensures the sharing and circulation of the results of regional research efforts.

This document is a work in progress. It is intended to provide an introduction and a working guide to the diversity of fishes in Cherokee Country. It interprets the uses of these fishes by the ***ani·tsalaki***, the Principle People. The intended audience for this document is primarily the Eastern Band of Cherokee. However, we recognize that the interest in fishes, as well as Cherokee culture extends to many others in the fields of anthropology, ichthyology, and American history.

Acknowledgements

Very special thanks are owed to the Tribal Elders who recognize the importance of their culture and its preservation. Lora O. Taylor, EBCI/Tribal Historic Preservation Office, must be recognized for her persistence and encouragement with the preparation of our first approach to capture this important aspect of Cherokee tradition. Lee Clauss was instrumental in developing the idea for this work. Much of the good information on the Cherokee names of the fishes was taken from the dissertation of Dr. Arlene Fradkin (1988) and the monumental work of Mooney (1900). George Ellison was a valuable source of information and provided helpful comments on an earlier draft.

Duke Power generously organized and funded the First Fish Weir Gathering at Webster on the Tuckasegee River on one cool morning in October 2004. The Duke Energy Foundation provided funds for the printing of this document. Mr. John Wishon of Duke Power has also been a friend to the Tribe, working to preserve their heritage and culture.

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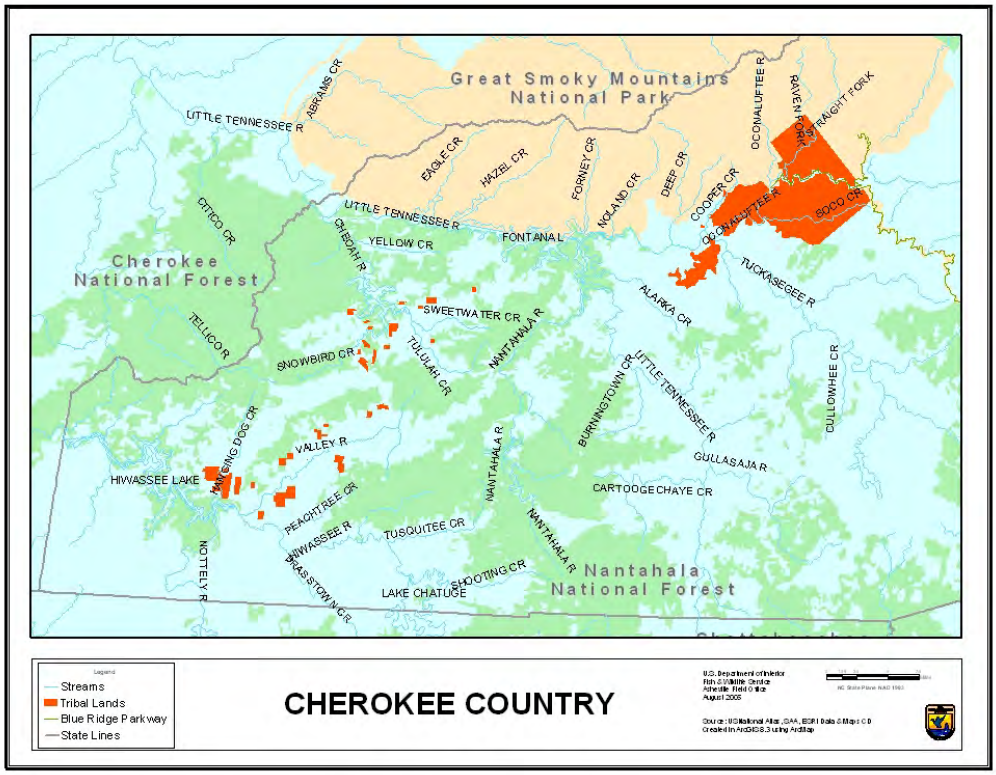
Some Fishes of Cherokee Country
Fish Description and Accounts

Cherokee Culture is both rich and storied. Cherokees and "pre-Cherokees" have lived in the southeastern United States and the mountains of western North Carolina and eastern Tennessee since the end of the last ice age, before the beginning of the Paleo-Indian Period (10,000 BC).

The Qualla Boundary includes the town of Cherokee, North Carolina, as well as several other communities. Many of these townships would have been clan townships in earlier times (Bird clan, Wolf clan, etc). There are other communities more removed from the main reservation that are still part of the Cherokee Reservation. Snowbird, is near Robbinsville, North Carolina, and several tracts, both large and small are in Cherokee County (the western-most county in the state), along the Valley River, Hiwassee River, and Hanging Dog Creek.

Cherokee Country



This is the setting for the culture and language of fishes in Cherokee Country. When we refer to Cherokee Country, we speak of the homeland of the Cherokees that included their hunting grounds and villages that once stretched across Western North Carolina, Upstate South Carolina, North Georgia, and East Tennessee. The fishes highlighted here are those of the heart of Cherokee Country in the Little Tennessee and Hiwassee River Basins.

Cherokee Name: **a·tsu·di**

Brook Trout *(Salvelinus fontinalis*) This is the only native salmonid in Cherokee Country. This fish is also known by locals as **speckled trout** or **mountain trout**. The other true trouts in Cherokee Country are the rainbow trout (native to the Pacific drainages of western North America) and the brown trout (native to Europe).
Status: Special Concern.
Occurrence: Cold, headwater streams such as Bunches Creek, Hornbuckle Creek, upper Snowbird Creek and Wrights Creek.
Aid to ID: This colorful fish is identified by a white edge on all but the dorsal fin. The back is dark olive with wavy markings. The sides are lighter with red spots surrounded by blue rings. The belly is usually orange, especially bright during breeding season. The tail is not forked, rather square. Adult size: 7 - 20 inches, though growth is slow.
Habitat: Prefer small, clear, swift waters at higher elevations. Larger fish may occur at lower streams in deep pools over clean gravel and rubble. This fish is often found in streams that are small enough to step across.
Food Habits: The **a·tsu·di**, or speckled trout, feeds on aquatic insects, salamanders, and crayfish.
Natural History: The **a·tsu·di**, or speckled trout, moves upstream in late fall to spawn. Females dig a nest in clear gravel, then males defend against intruders.
Management Considerations: The **a·tsu·di**, or speckled trout, require oxygen-rich cold water. The northern (Canadian) strain of brook trout is easily reared in hatcheries, while **a·tsu·di**, or speckled trout is not tamed. The **a·tsu·di** is a favorite fish for food.

Cherokee Name: **u·no·ga**

Smallmouth bass *(Micropterus dolomieu*) This is the common bass of our streams and rivers in Cherokee Country. The similar spotted bass is found in rivers and reservoirs, while largemouth bass typically occur in reservoirs.
Status: Common.
Occurrence: Cool and warmwater streams such as Burningtown Creek, Peachtree Creek, Oconaluftee River, Little Tennessee River, Tuckasegee River, Hiwassee River.
Aid to ID: This sleek fish is identified by a smaller mouth than the largemouth bass. The back is dark olive, green, or bronze. There may be a series of dark bars on its sides. Adult size: 7 - 27 inches.
Habitat: Prefer clear, swift waters at higher elevations. Larger fish may occur at lower streams in deep pools over clean gravel and rubble. This fish is intolerant of turbidity or siltation.
Food Habits: The **u·no·ga**, or smallmouth bass, feeds on other fish, aquatic insects, salamanders, and crayfish.
Natural History: The **u·no·ga**, or smallmouth bass, spawns in late spring. Males dig a shallow nest in gravel, where he then defends against intruders.
Management Considerations: The **u·no·ga**, or smallmouth, requires oxygen-rich clear water. The **u·no·ga** is a favorite of anglers.

Cherokee Name: **oliga**

River Redhorse (*Moxostoma carinatum*) This is a large swift fish of large streams and rivers.

Status: State Rare

Occurrence: Larger streams and rivers: Hiwassee and Valley Rivers, Tuckasegee and Little Tennessee River.

Aid to ID: Red fins and thick fleshy lips distinguish river redhorse from other members of the sucker family. Moderately stout, round body. Bronze olive back, sides and belly yellowish or bronze. Head has a squared snout. Has molar-like throat teeth. Adult size: 12 - 24 inches.

Habitat: Prefer moderate to swift waters of large rivers, lower portions of their main tributaries, reservoirs and pools over clean gravel and rubble. Seldom found in deep water with mud, silt, or sand bottom.

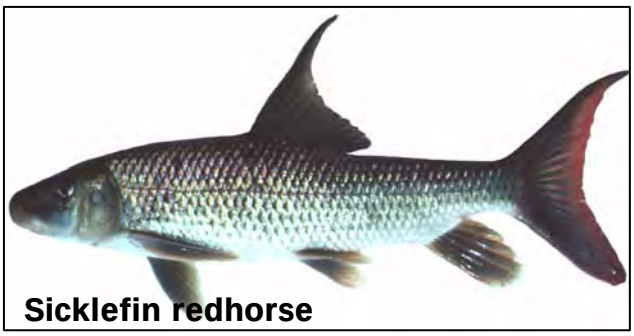
Food Habits: River redhorse eat mollusks (snails), mayfly, stonefly, and caddis nymphs. Their molar-like throat teeth are specialized for eating mollusks.

Natural History: Spawn during late March or early June. Females lay from 6000-23,000 eggs on nests in gravel which hatch in three or four days. They may make upriver spawning migrations.

Management Considerations: This redhorse species is quickly restored to waters from which they have been eliminated if there is a reservoir population nearby. Both the river redhorse and mollusks on which they feed are intolerant to siltation and turbidity.

Cherokee Name: **oliga**

Redhorse (*Moxostoma* species) These are large, swift fishes of large streams and rivers.


Sicklefin redhorse

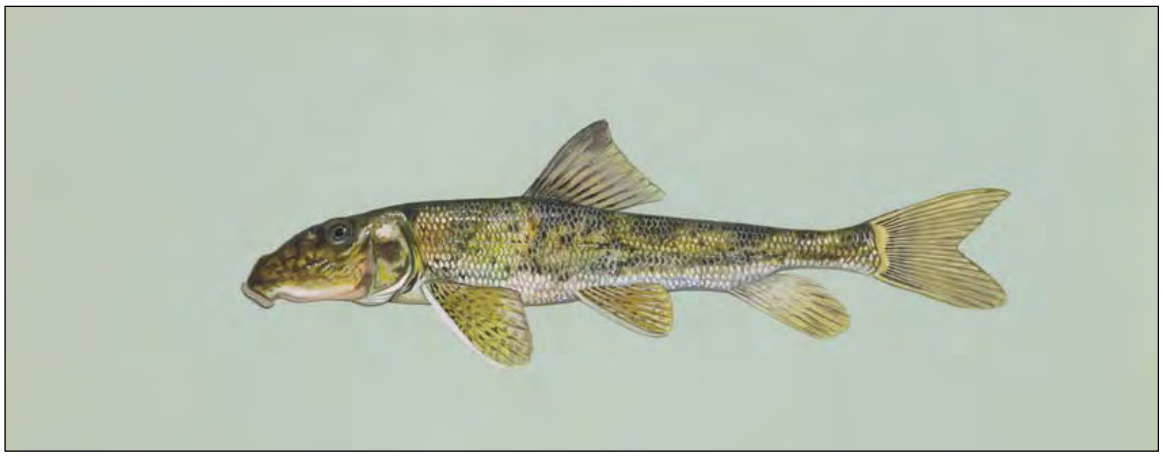

Silver redhorse


Black redhorse


River redhorse

Some of the many diverse species of redhorses found in Cherokee Country:

- River redhorse
- Black redhorse
- White sucker
- Sicklefin redhorse
- Silver Redhorse
- Shorthead Redhorse
- Golden Redhorse
- Northern hogsucker



Cherokee Name: **daloge**

Northern hog sucker *(Hypentilum nigracans*) This is a large bottom dwelling fish of swift, clear streams.
Status: Common.
Occurrence: The **daloge**, or hogsucker, is most often found in clear, shallow, swift areas of streams where it prefers riffles and pools with gravel and rubble bottoms in larger streams and rivers like the Oconaluftee River, Deep Creek, Tuckasegee River, Valley River, lower Santeetlah Creek, and Hiwassee River.
Aid to ID: The **daloge**, or hogsucker, is identified by its large rectangular head that is sunken between the eyes. The body is cylinder-shaped with 6 dark saddles across the back and side. Its tail fin is deeply forked. The distinctive mouth is horizontal with fleshy lips. The **daloge**, or hogsucker, is mottled yellowish-brown that fades to a gray belly. Adult size: 4 - 24 inches.
Habitat: Prefers large streams and rivers, with swift, clear waters. The **daloge**, or hogsucker, moves downstream to deeper, slow pools during winter.
Food Habits: The **daloge**, or hogsucker, feeds on insect larvae, crayfish, and vegetation. When feeding, the **daloge**, or hogsucker, will root through sand and gravel, and roll rocks in pursuit of food.
Natural History: The **daloge**, or hogsucker, spawn in from late March to June, in swift riffles where eggs sink between spaces in the gravel.
Management Considerations: The **daloge**, or hogsucker, requires clean, cool water.

Cherokee Name: **u·ta·lu·ga**

DG JO GJ

Minnow *(Cyprinidae* family), illustration of **Warpaint Shiner (*Luxilus coccogenis*)** This is a large family composed of many species, usually small fishes, collectively called **u·ta·lu·ga** by the Cherokee.

Status: Common.

Occurrence: The **u·ta·lu·ga**, or minnow, inhabits a variety of stream types from large rivers to small steep streams. The Cherokee name does not distinguish the species and likely refers to those shiny schools of minnows seen in clear, shallow, swift areas of streams and rivers like the Oconaluftee River, Deep Creek, Tuckasegee River, lower Santeetlah Creek Valley River, Hanging Dog Creek, and Hiwassee River.

Aid to ID: The **u·ta·lu·ga**, or minnow, is identified by a single dorsal fin, and often shiny appearance. The **u·ta·lu·ga**, or minnow, is typified by the warpaint shiner and the whitetail shiner that occur in rocky runs in creeks and small rivers. Adult size: 1½ - 4 inches.

Habitat: Prefers large streams to small rivers, with swift, clear waters. The **u·ta·lu·ga**, or minnow, often forms schools in swift runs near large boulders.

Food Habits: The **u·ta·lu·ga**, or minnow, feeds on insect larvae, crayfish, and vegetation. When feeding, the **u·ta·lu·ga**, or minnow, will root through sand and gravel, and roll rocks in pursuit of food.

Natural History: The **u·ta·lu·ga**, or minnow, spawn in from late March to late summer, some forming mounded nests of round stones.

Management Considerations: The **u·ta·lu·ga**, or minnow, requires clean, cool water. Many minnow species are sensitive to poor water quality including excessive sedimentation.

Cherokee Name: **usgwohli egwa** Ꭻ ᏅᏬᏝᎾ Ꮅ

Flathead Catfish *(Pylodictus olivaris*) This is a large catfish that is distinguished by a large flat head. Also referred to by tribal elders as "big belly", and are good to eat.

Status: Common.

Occurrence: The **usgwohli egwa**, or catfish, is most often found in deep, sluggish pools of larger rivers like the Tuckasegee River, Little Tennessee River and Hiwassee River.

Aid to ID: The **usgwohli egwa**, or catfish is identified by its broad, flat head and its square tail fin. The **usgwohli egwa**, or catfish is mottled yellowish-brown that fades to a gray belly. Adult size can be up to 95 pounds.

Habitat: Prefers large, streams and rivers, with slow, warm waters at lower elevations. Largest fish occur in deep pools. This fish is often found near shelter such as sunken logs or other debris.

Food Habits: The **usgwohli egwa**, or catfish, feeds on aquatic insects and crayfish when small. When larger, it feeds primarily on other fish.

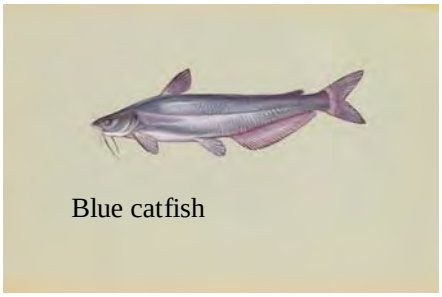
Natural History: The **usgwohli egwa**, or catfish, spawn in summer. Females lay eggs in a shallow depressions usually adjacent to a large log or other covers. Males defend the nest and small fry after hatching.

Management Considerations: The **usgwohli egwa**, or catfish, requires warm slow pools, though otherwise is quite hardy.

Cherokee Name: **usgwohli egwa**

Catfish Catfish are most active at night, often grow large, and are a favorite source of fun and food.

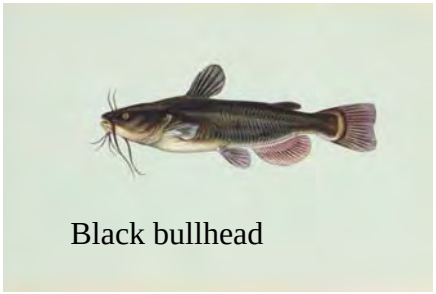
Brown bullhead



Blue catfish

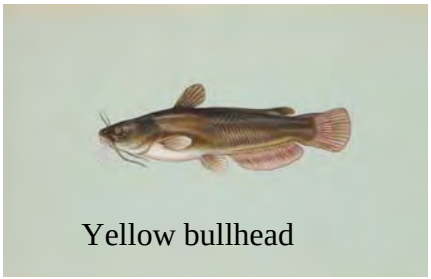
Channel catfish

White catfish

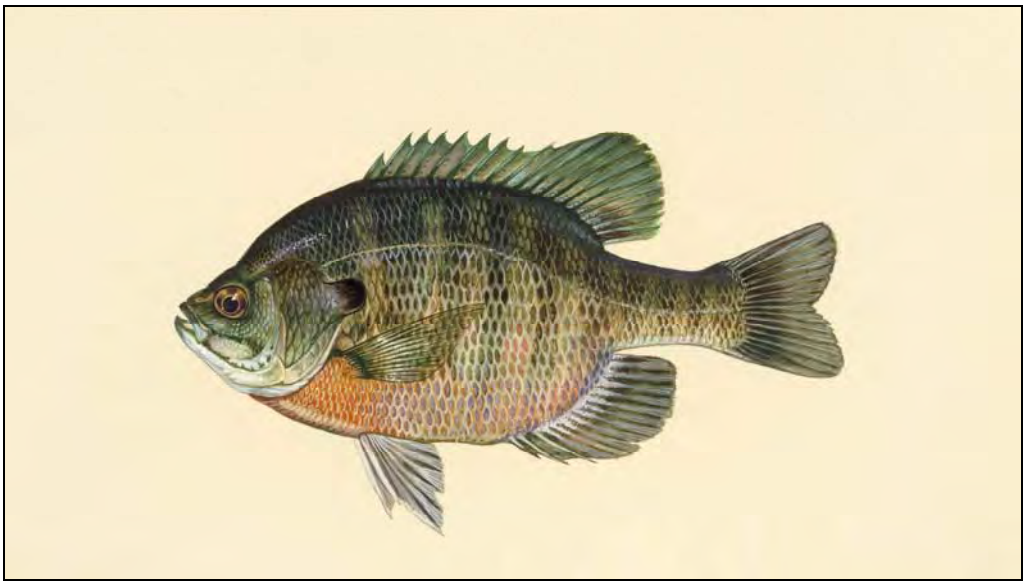


Black bullhead

Flathead catfish



Yellow bullhead



Cherokee Name: **agola**

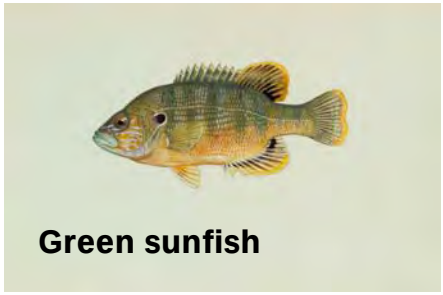
Bluegill *(Lepomis macrochirus*) This is a small sunfish.
Status: Common.
Occurrence: The **agola**, or sunfish, is most often found around brush in deep, slower pools of larger rivers like the Tuckasegee River, Little Tennessee River and Hiwassee River.
Aid to ID: The **agola**, or sunfish, has an oval shape and a small mouth. The upper back is blue or purple, with black bars on the side. There is a dark spot at the base of the dorsal fin. The **agola**, or sunfish adult size can be from 7 to 16 inches.
Habitat: Prefers large, streams and rivers, with slow, warm waters at lower elevations. Largest fish occurs in deep pools. This fish is often found near shelter such as aquatic vegetation, brush, sunken logs or other debris.
Food Habits: The **agola**, or sunfish, feeds on aquatic insects, small fishes, and crayfish. Bluegill will readily take a fly, or popping bug. Tribal elders know these sunfish are easier to capture at night.
Natural History: The **agola**, or sunfish, spawn in spring and summer. Females lay eggs over a sand or gravel depression usually in shallow water. Males defend the nest and small fry after hatching.
Management Considerations: The **agola**, or sunfish, is quite hardy, is readily reared in ponds.

Cherokee Name: **agola**

Sunfishes The sunfishes of Cherokee Country are diverse and a favorite source of fun and food.

Bluegill

Redear sunfish



Green sunfish

Flier

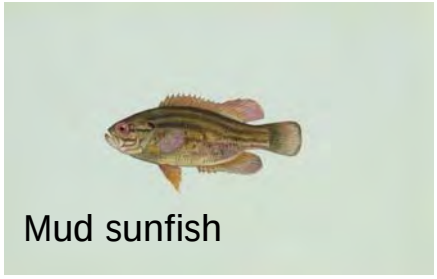
Redbreast sunfish

Warmouth

Longear sunfish

Orange spotted sunfish

Pumpkinseed



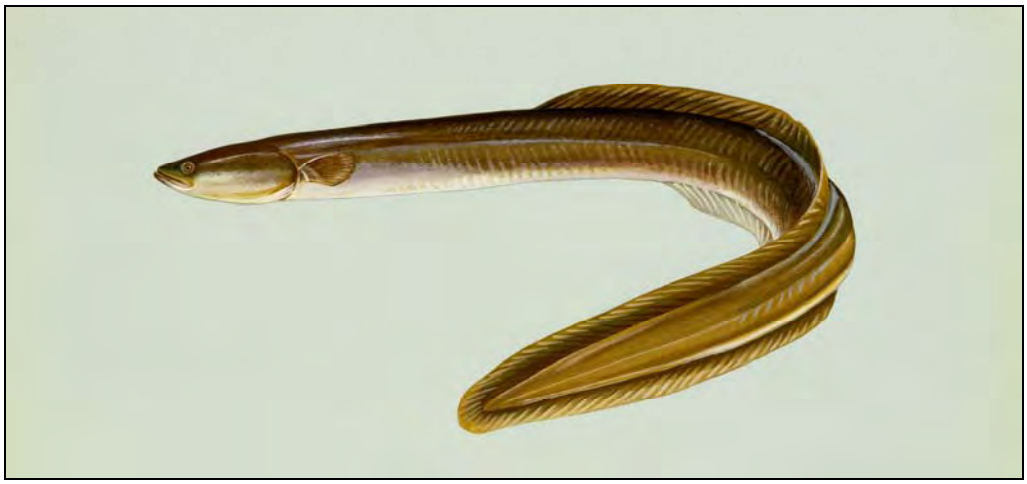
Mud sunfish

Cherokee Name: **ugvsdelli**

Horneyhead fish, knottyhead, or stoneroller (*Campostoma anomalum*) This is a round-bodied minnow with a distinct hard ridge along the lower jaw.
Status: Common.
Occurrence: The **ugvsdelli**, or central stoneroller, is most often found in clear, shallow, swift areas of streams where it prefers riffles and pools with gravel and rubble bottoms in larger streams and rivers like the Oconaluftee River, Deep Creek, Tuckasegee River, Valley River, lower Santeetlah Creek, and Hiwassee River.
Aid to ID: The **ugvsdelli**, or central stoneroller, is identified by its round body and tan color, and fins with a dark band. Males become orange during spawning, and develop tubercles (knots) on most of the head and upper body. The mouth is located under the head, with large white lips. The **ugvsdelli**, or central stoneroller, is mottled yellowish-brown that fades to a gray belly. Adult size: 4 - 9 inches.
Habitat: Prefers large streams and rivers, with rocky, riffles and runs with clear waters and moderate current. The **ugvsdelli**, or central stoneroller, moves downstream to deeper, slow pools during winter.
Food Habits: The **ugvsdelli**, or central stoneroller, feeds on algae off stones with its hard lower lip.
Natural History: The **ugvsdelli**, or central stoneroller, spawn in from mid to late spring. The male moves small pebbles with its mouth, and roll larger ones to form a pit nest. The eggs sink between spaces in the gravel, developing with no parental care.
Management Considerations: The **ugvsdelli**, or central stoneroller, requires clean, cool water.

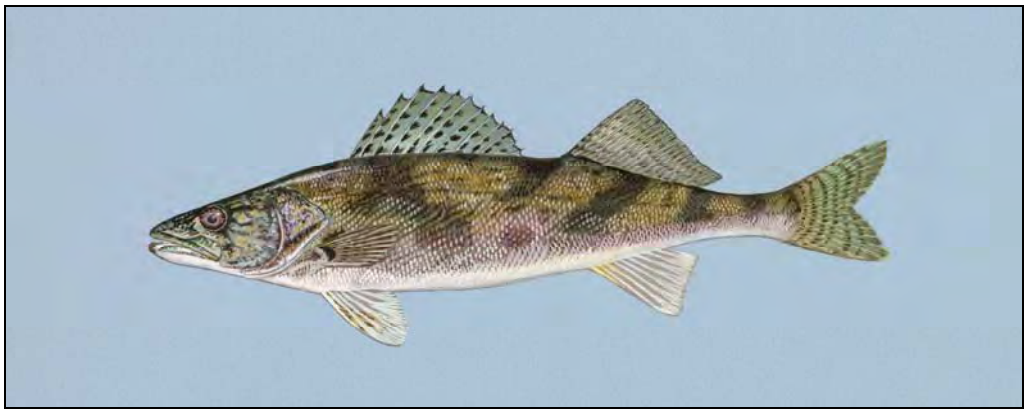
Cherokee Name: **tsisgwalvna**

Mumblehead fish or Mottled sculpin *(Cottus bairdii)* This is a small, large-headed, bottom dwelling fish of swift, clear streams.
Status: Common.
Occurrence: The **jisgwalvna**, or sculpin, is most often found in clear, shallow, swift areas of streams where it prefers riffles and pools with gravel and rock bottoms in streams and rivers like the Oconaluftee River, Soco Creek, Raven Fork, Deep Creek, Tuckasegee River, Valley River, lower Santeetlah Creek, and Hiwassee River.
Aid to ID: The **jisgwalvna**, or sculpin, is identified by its large mouth, big eyes, large fan-shaped fins. The head is the widest part of the fish. The 2 dorsal fins run most of the length of the body. Its tail fin is rounded. The **jisgwalvna**, or sculpin, is mottled yellowish-brown that fades to a gray belly. Adult size: 2 - 8 inches.
Habitat: Prefers streams and rivers with swift, clear waters. The **jisgwalvna**, or sculpin, seeks shelter beneath rocks.
Food Habits: The **jisgwalvna**, or sculpin, feeds on aquatic insects, crayfish, and other fishes.
Natural History: The **jisgwalvna**, or sculpin, spawn from January to May, beneath a rock or log where eggs are laid on the underside of waterlogged wood and guarded by the male.
Management Considerations: The **jisgwalvna**, or sculpin, requires clean, cool water. The fish may serve as a host to complete the life cycle of the endangered mussel, Appalachian elktoe.



Cherokee Name: **tlvdega** Ᏻ Ꮪ Ꮪ

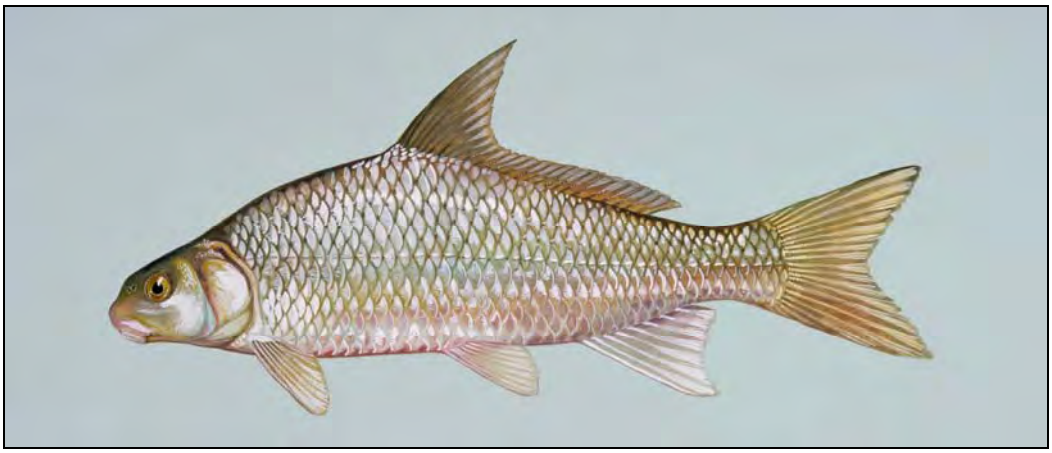
American eel (*Anguilla rostrata*) This uniquely long, slender fish may grow quite large in any mountain river or stream.
Status: Very rare now in Cherokee Country.
Occurrence: The **tlvdega** or American eel, is found in clear, deep, margins of swift areas of streams where it prefers riffles and pools with gravel and rock bottoms in streams and rivers like the lower Hiwassee River and Little Tennessee River. Historically the eel probably occurred through even the smallest of streams and rivers in Cherokee Country.
Aid to ID: The **tlvdega** or American eel, is identified by its long snake-like appearance. Similar species include the jawless lampreys that have a disk-like mouth and a series of gill openings behind the head. The **tlvdega** or American eel, is mottled yellowish-brown but changes to silver when mature. Adult size: 36 - 60 inches.
Habitat: Prefers streams and rivers with swift, clear waters. The **tlvdega** or American eel, seeks shelter during the day beneath logs, or rocks or burrows into gravel banks.
Food Habits: The **tlvdega** or American eel, feeds on aquatic insects, crayfish, and other fishes.
Natural History: The **tlvdega** or American eel, spawn in the Sargasso Sea, a rich area of the central North Atlantic. Juveniles make their way inland from the Atlantic Ocean and Gulf of Mexico, attaining rapid growth as they move inland. Eels may spend many years (up to 60-80 yrs) in freshwater prior to moving back to sea to spawn.
Management Considerations: The **tlvdega** or American eel, requires clean, cool water. The fish has experienced significant declines in recent years, likely a culmination of many years of overharvest and lack of access to headwater maturation habitat above dams.



Cherokee Name: **kawanu kayvsoli**

pike or walleye (*Stizeotedon vitreum*) This is a large fish with a distinctive whitish, opaque eye.
Status: Common.
Occurrence: The **kawanu kayvsoli**, or pike, is most often found in large, clear, cool lakes and rivers, usually in deep water. It is generally found in Fontana Reservoir, Lake Santeetlah, or rivers like the lower Oconaluftee River, Tuckasegee River, Valley River, and Hiwassee River during spring. It is most often caught in these rivers below natural bedrock outcrops.
Aid to ID: The **kawanu kayvsoli**, or pike, is identified by its large whitish opaque eyes. The olive back has several dark saddle shaped blotches. Its tail fin is deeply forked. The **kawanu kayvsoli** is mottled yellowish-brown that fades to a light belly. Adult size: 12 – 36 inches.
Habitat: Prefers large, deep lakes and rivers with clear water. The **kawanu kayvsoli**, or pike, moves to deep areas in summer.
Food Habits: The **kawanu kayvsoli**, or pike, feeds on aquatic insects, while young. Adults primarily consume other fishes. The **kawanu kayvsoli**, or pike, is most active in evening when it moves to shoals and bars to feed.
Natural History: The **kawanu kayvsoli**, or pike, spawn from late winter or early spring over sand and gravel bars at night.
Management Considerations: The **kawanu kayvsoli**, or pike, is not tolerant of pollution or silty waters.

The muskellunge or "muskie" is the largest of the true pike family, sometimes reaching nearly 70 pounds. The muskie prefers deep vegetated pools in large rivers. Muskies are stocked and may be caught in Fontana Reservoir.



Cherokee Name: **gasadi**

Drumfish (*Aplodonotus grunniens*) or buffalo (*Ictiobus niger*)
This is a large bodied fish of large rivers, or sometimes reservoirs and small rivers.
Status: Uncommon.
Occurrence: The **gasadi**, or drum, is most often found in warm, sluggish water, slow areas of large rivers with sand, mud, and silt bottoms. It is generally a big river fish found in rivers like the lower Little Tennessee River, French Broad River, and Hiwassee River.
Aid to ID: The **gasadi**, or drum, is identified by its small mouth, big eyes, and large dorsal fin. The head is small, while the body has a distinct hump shape. Its tail fin is rounded. The **gasadi**, or drum, is grayish white or silver. Adult size: 12 - 38 inches may be 50 pounds or more. Cherokee ancestors probably saw **gasadi** of 200 pounds.
Habitat: Prefers large slow pools with muddy water. The **gasadi**, or drum, feeds at all hours, but moves into shallow water to feed at night.
Food Habits: The **gasadi**, or drum, feeds on snails, mussels, aquatic insects, crayfish, and other fishes. It finds its prey by touch and taste.
Natural History: The **gasadi**, or drum, spawns from May to July. It usually spawns in open water, far from shore, where males make the characteristic drumming sounds.
Management Considerations: The **gasadi**, or drum, provides great sport on hook and line. It is a prized fish for the table, often served in restaurants.

Cherokee Name: **dugalvna**

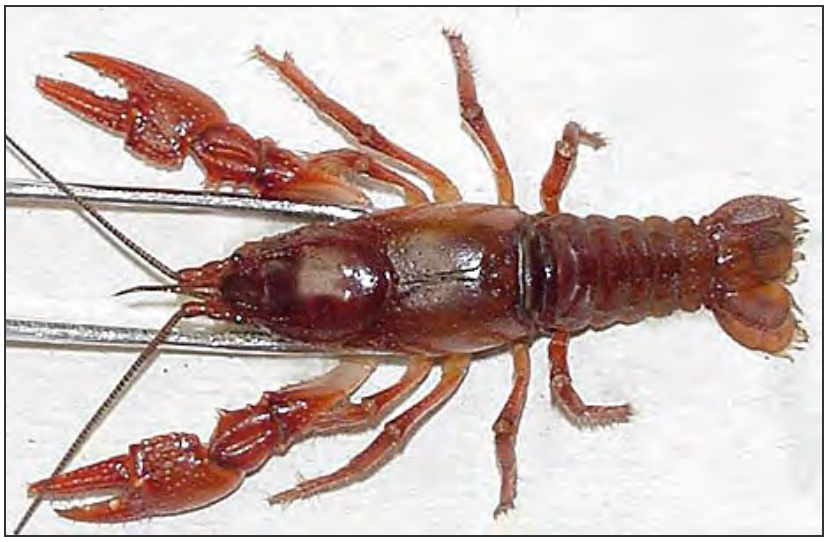
darter (*Percina* species) This is a small, bottom dwelling fish of large streams and rivers. The most famous of these fishes is the snail darter, known originally form the Overhill area of the lower Little Tennessee River from Tellico to Tallassee.
Status: Common.
Occurrence: The **dugalvna**, or darter, is most often found in deep, swift areas of large streams with boulder or cobble bottoms. It is generally a fish of small to medium rivers like the Oconaluftee River, Deep Creek, Cheoah River, Little Tennessee River and Hiwassee River.
Aid to ID: The **dugalvna**, or darter, is identified by streamline appearance with large pectoral fins that help the fish stay in place on the bottom in swift current, giving it the appearance of hopping or darting along the stream bottom. The **dugalvna**, or darter, may be quite colorful, especially during spawning. Adult size: 4 - 7 inches, depending on species.
Habitat: Prefers swift runs and riffles of clear waters. The **dugalvna**, or darter, seeks shelter beneath rocks.
Food Habits: The **dugalvna**, or darter, feeds on aquatic insects, larvae, and snails, often flipping stones and sticks in search of food.
Natural History: The **dugalvna**, or darter, spawn from April to June, beneath a rock or log where eggs are laid on the underside of a flat rock and guarded by the male.
Management Considerations: The **dugalvna**, or darter, requires swift, clean, cool water.

Other Aquatic Species

Cherokee Name: **Tsi·stv·na**

Green Crayfish (illutration of *Cambarus georgiae*) - Crayfish live in many types of aquatic habitats, including streams, rivers, lakes, ponds and swamps. Crayfish play an important role in the function of aquatic ecosystems. Crayfish are omnivores. They usually consume live aquatic plants; however, they also eat insects, snails, small fish, pealgae from rocks, and other aquatic organisms. Crayfish are also considered scavengers, since they regularly consume dead animal and plant material. They forage mostly at night and seek shelter from predators during daylight. Crayfish serve as a food source for many animals, such as game fishes, otter and other mammals, birds and reptiles. Fish consume as much as two-thirds of the annual crayfish production. Crayfish serve as a major link in an intricate aquatic food web by consuming such a variety of foods and by making processed nutrients available to other animals. In this way, they facilitate the cycling of nutrients and energy in the entire aquatic system.

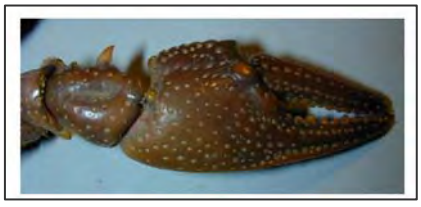
A Cherokee account of the differences between the red crayfish **Tsi·sko·ki·li** and the green crayfish **tsi·stv·na** tells how two crayfish were walking along when they were approached by the Devil, **Aski·na**. Come this way he told them. Only one crayfish decided to follow. As he kept getting closer and closer to the land of the fire, the temperature gradually increased. And so, the crayfish did not notice that his body was turning red from the heat. The other crayfish saw his friend's shell begin to change from a distance. Instinctively, he began retreating, in the way crayfish move ever since that day. When he reached the water he jumped in and the green crayfish **tsi·stv·na** has lived in the water and swims backward ever since.



Cherokee Name: **Tsi·sko·ki·li**

Red crayfish (*Procambarus carolinus*) – The red crayfish is a typical coloration of burrowing crayfish that tunnel in soft wetland soils alongside streams and rivers throughout Cherokee Country. Some species dig burrows downward to the water table in swamps and wet pastures, along streams, or even in your backyard. These burrows may develop into an intricate maze of tunnels and chambers. However, at the surface, the only indication of this underground maze is many holes on the surface, with "chimneys" of mud-balls excavated as the crayfish burrow develops. The Cherokee do not eat the red crayfish.

In the Cherokee myth “How the World was Made” the red crayfish **tsi·sko·ki·li** attained its red color from the sun.



Cherokee Name: **Dagvna**

Mussels, **Dagvna**, are also called shellfish, clams, bivalves, and unionids. Mussels are important to both man and the environment. Since they filter water for their food, mussels serve as natural water filters and act as indicators of water quality conditions. Freshwater mussels also serve as food for many types of animals. The Southeast has one of the richest and most diverse assemblages of mussels in the world with over 200 species.

Factors such as the impoundment of rivers, channelization, pollution, modern industrialization and urban development, erosion, and siltation have significantly affected mussel populations. Many mussels are considered extinct, threatened, endangered, troubled, or of special concern. Proper management, protection and monitoring of the surviving native mussel resources (especially habitat) are essential to preserve this biologically diverse part of our aquatic community.

The Cherokee ancestors used mussel shells as tools to hoe corn, scrapers, arrow points, and as ceremonial ornaments. The value of mussels as food was greatest when other sources failed.

Mussels of Cherokee Country

Little Tennessee and Tuckasegee River

- Appalachian elktoe *Alasmidonta raveneliana*
- Slippershell mussel *Alasmidonta viridis*
- Wavy-rayed lampmussel *Lampsilis fasciola*
- Littlewing pearlymussel *Pegias fabula*
- Rainbow *Villosa iris*
- Spike *Elliptio dilatata*
- Tennessee pigtoe *Fusconaia barnesiana*
- Tennessee Heelsplitter *Lasmigona holstonia*

Cheoah River and Snowbird Creek

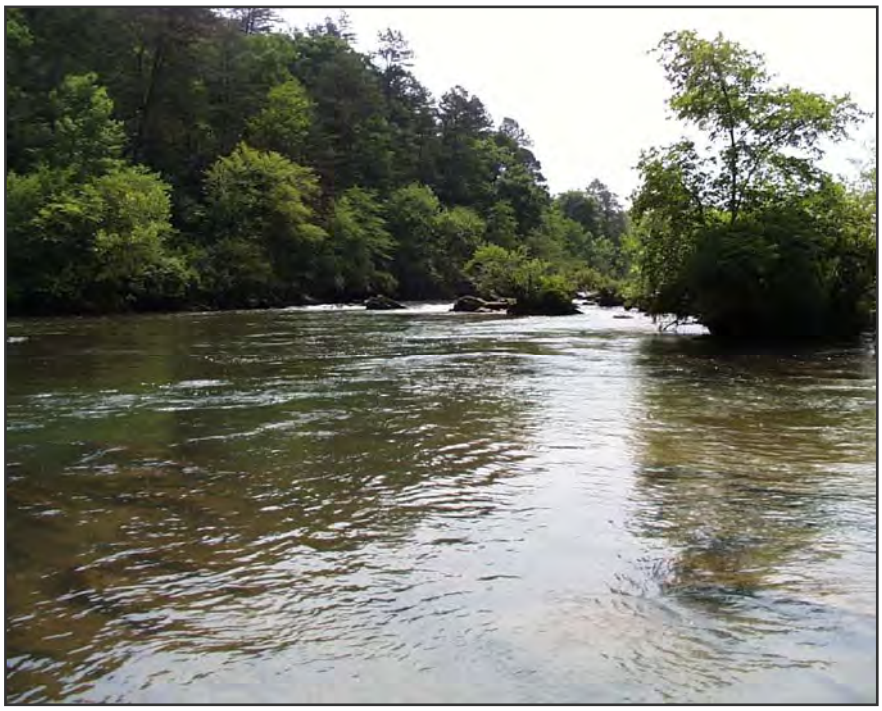
- Appalachian elktoe *Alasmidonta raveneliana*
- Pondshell *Utterbackia imbecillis*
- Asiatic clam *Corbicula fluminea*

Hiwassee River, Valley River & Hanging Dog Creek

- Slippershell mussel *Alasmidonta viridis*
- Wavy-rayed lampmussel *Lampsilis fasciola*
- Littlewing pearlymussel *Pegias fabula*
- Rainbow *Villosa iris*
- Spike *Elliptio dilatata*
- Mountain creekshell *Villosa vanuxemensis*
- *Elliptio* sp
- Longsolid - *Fusconaia subrotunda*
- Tennesee clubshell - *Pleurobema oviforme*

Fish Habitats

Large Rivers. The very names of the streams and rivers tell us of the importance to the Cherokee ancestors. Many of the place names of the region are derived from the Indian names. The Tuckasegee **Tsiksi'tsi** River was the big turtle, slow, steadily moving down the broad valley. The Tennessee River, the Little Tennessee River,



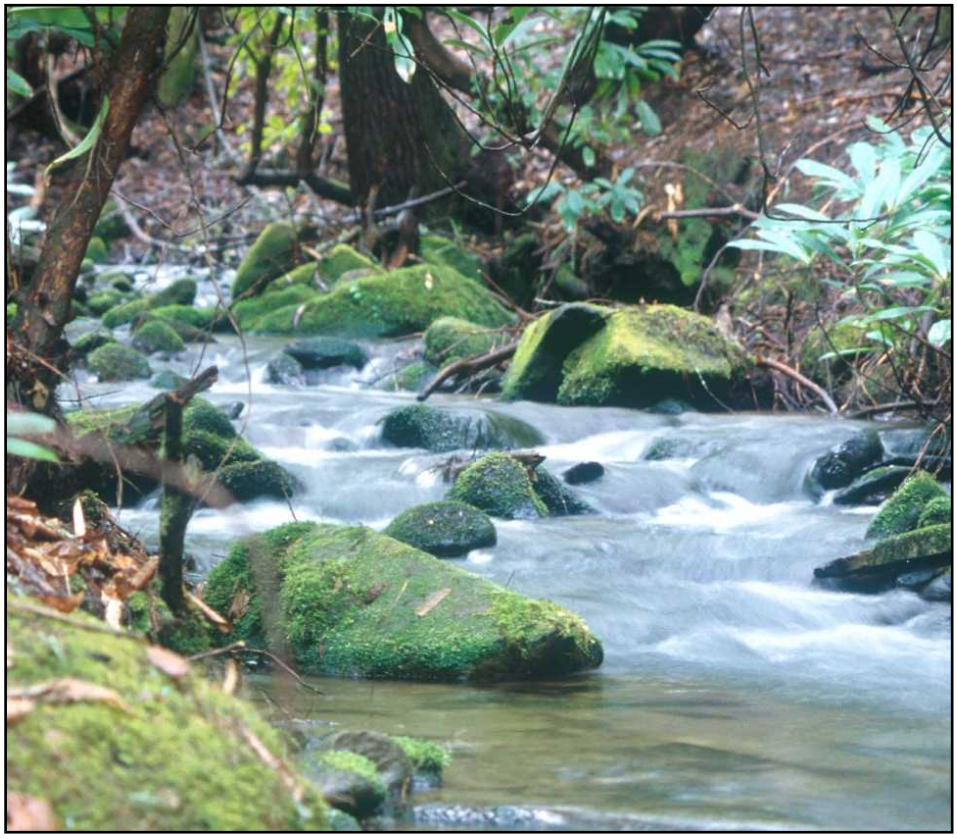
Tanasee Creek, take their name from the Cherokee. The name Tennessee comes from the Indian word **Tanasi**, the name of Cherokee villages on the Little Tennessee River. The Hiwassee River is named for the Cherokee word **ayu-hwa-si**, meaning meadow or savannah. The Chattooga River is said to derive from the Cherokee word **Tsatu'gi** meaning 'has crossed the river' and 'drank by sips' or 'he sips'. The name for the Nantahala **Nun'daye li** River is derived from Middle (i.e., Noonday) sun," from **nunda'** for sun**,** and **aye li**, middle. It specifically refers to the point on the river where the high cliffs are almost perpendicular and shut out the view of the sun until nearly noon.

On the head of the Nantahala River is the community of Aquone, probably a corruption of **egwani**, Cherokee for river. These are all favorite fishing holes of tribal members.

Large streams

Oconaluftee River, Raven Fork, and Deep Creek flow into the Tuckasegee River. These large streams are home to big **a·tsu·di**, trout, **daloge** northern hogsuckers, lurking **u·no·ga** smallmouth bass, and lively rock bass. Snowbird Creek is a prized trout stream that once formed the headwaters of the Cheoah River, but now flows into Lake Santeetlah. Hanging Dog Creek and Valley River flow into the Hiwassee River, tumbling across rocky ledges, then flowing gently through deep pools where redhorse feed.

Definition: A "***watershed***" is the land area that drains to a particular water body, such as a lake, river, stream, or estuary. It can range in size from your backyard, to the expanse of the continent that empties into the Gulf of Mexico. All land surfaces are part of some watershed, and we all live in watersheds.



Small streams

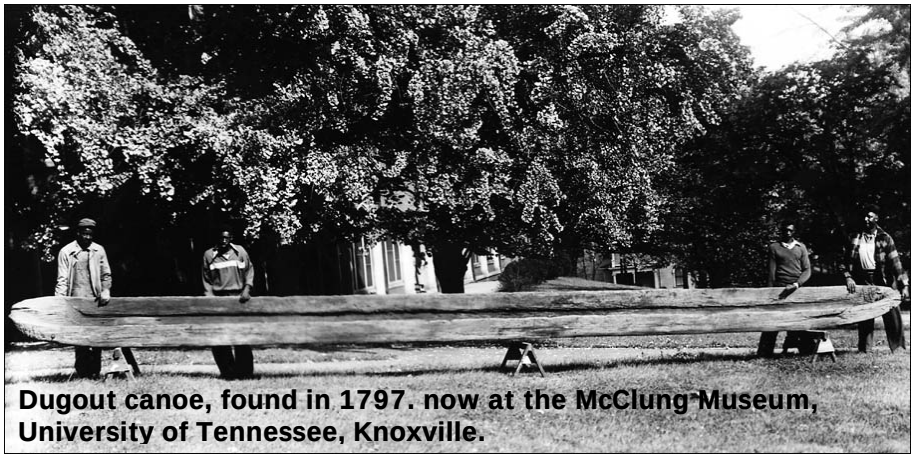
Stecoah Creek, Bunches Creek, and Soco Creek are home of trout, **adaja**, or speckled trout. These streams, once home to these native **adaja** trout, now are shared with rainbow and brown trout. Small streams from their headwaters are home to crayfish, **tsi·stv·na**. The narrow wet areas along these streams abound with the burrows of **tsihsko·kili**, or red crayfish and **duweka**, salamanders.

Ecology. As a general rule, large rivers are the homes of large fishes, and the largest representation of biological diversity. Small streams usually are home to smaller fishes overall, and the fewest species of fish.

Here in the large streams and rivers are also found the largest of our salamanders, the hellbender and mudpuppy, known by the Cherokees as **tsuwa**, and water turtles, **saligugi**, like the snapping turtle or the large Eastern spiny softshell turtles, **ulanawa**. These are also the streams where we see the **gatsedali**, great blue heron, or **unega gatsedali**, the white egret, wading in the shallow shoals. Ducks, **kawonu**, arrive in the fall along the large rivers on their migration southward.

Water Quality

Our rivers are part of the very fabric of the identity of Cherokee Country. Since the earliest times, they've been a source of food, recreation, transportation, and livelihoods.



Dugout canoe, found in 1797. now at the McClung Museum, University of Tennessee, Knoxville.

But just as population and production around Cherokee Country have steadily risen, so have the demands on our streams. Over the years, we've clear-cut forests, straightened river channels, and removed the native vegetation right up to rivers' edges to increase agricultural production and create human settlements. Those practices have resulted in a never-ending, unfiltered flow of pesticides, nutrients, sediment, and other pollutants into our waterways.

Biological Importance. Freshwater covers less than 1% of the earth's surface and comprises less than one-hundredth of a percent of the planet's total water. Nevertheless, this relatively scarce substance is essential to life on the planet. Freshwater rivers and lakes are home to approximately 12% of all animals and about 41% of the known fish species.

The streams and rivers of Cherokee Country are among the most diverse, temperate, freshwater ecosystems in the world, but they're being rapidly altered by changes in water quality and quantity, habitat degradation, and exotic species.

There's more to a stream than the rushing or meandering water, and protecting its biodiversity is not easy. A stream corridor or valley is a complex ecosystem comprised of the land, plants, animals, and a network of smaller streams. Human activities even many miles upstream, may affect a river's ability to renew itself and support aquatic life. Scientists and others concerned with river health know that

protecting a river's *watershed*, or natural drainage basin, is the key to protecting biological diversity, and that feat is best accomplished through the involvement of the watershed's residents.

Sources of Stream Pollution. The U.S. has 3.5 million miles of rivers. The Environmental Protection Agency 1996 National Water Quality Inventory found that only 64% of the stream segments inventoried were fully capable of supporting the "beneficial uses" (like drinking water supply, fish and wildlife habitat, and swimming) they provided in the past. The water quality in the remaining 36% of streams inventoried was degraded to an extent that interfered with one or more of the uses.

Most of the pollution in our rivers and streams isn't caused by regulated industries or other "point" sources. It's coming from numerous, indistinct, untraceable sources that each deposit pollutants on the landscape. Those contaminants are collectively delivered to waterways by rainwater "running off" the land. We refer to this multitude of pollution contributors as "non-point" sources.

Regionally and nationally, agriculture is the single, most important cause of water quality degradation in our rivers. Sediments and excess "nutrients" (nitrogen and phosphorous compounds) are the two most significant pollutants. While not reaching the causal proportions of agriculture, municipal sewers and urban runoff are also significant contributors to surface water pollution.

Agricultural runoff often contains fertilizers, pesticides, topsoil, and silt that alters the physical and biological integrity of rivers. Urban runoff from hard surfaces such as concrete and asphalt typically contains motor oil, anti-freeze, gasoline, and other petroleum residues. Typical pollutants in urban runoff are household and commercial cleaning products, and fertilizers and pesticides from residential lawns and commercial landscaping. Sewage plants contribute harmful bacteria and oxygen-depleting substances to waterways. Controlling polluted runoff and restoring the health of stream corridors is critical to us all.

Fish Uses

The fishes of Cherokee Country were an important part of the life of the people. Fishes were obviously important to the diet, providing a much needed source of protein and vitamins. Fishing probably took place traditionally in summer and often was a cooperative effort by men and women. Preferred fish **ajaldi** for eating were trout **adaja**, and **oliga**, redhorse, roasted or smoked, and minnow **amatke** in a soup. Fish **ajaldi** bones or gar teeth were used in scratching ceremonies. Eel **tlvdegwa** skins were used by ball players who rubbed themselves in order to become slippery. Women used eel **tlvdegwa** skins to tie their hair up to make it grow long. Oil of the eel **tlvdegwa** was used as a medicinal treatment for rheumatism and stiff joints.

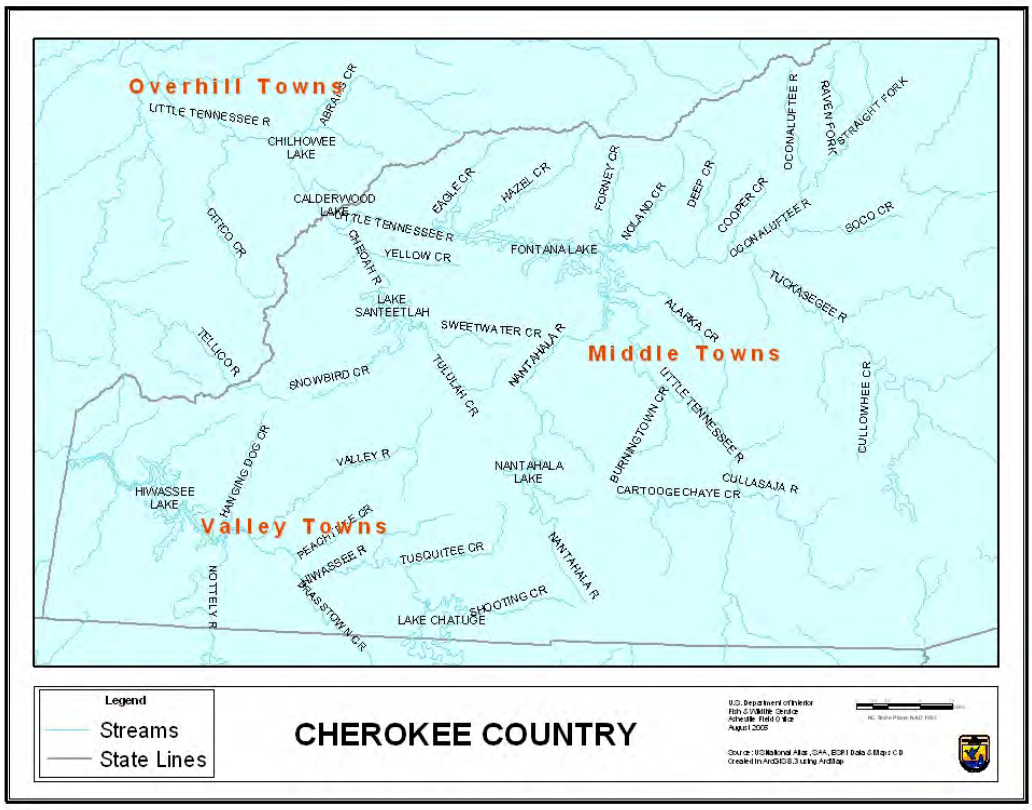
The Cherokee culture associated with fishes. Fish **ajaldi** appear in the oral traditions of the Cherokee as monsters like the **dagwa**, father of all fish, or as lore associated with medicinal practices. Some Cherokee people were prohibited from eating certain fishes – ball players could not eat **daloge**, the hogsucker, because of its characteristics as a sluggish fish, since they must be swift. Women could not eat trout **adaja** while pregnant.

While some fish were prescribed as cures to illness – **julisdanali**, blue catfish, and **oliga**, redhorse, were used for a breathing disorder caused by insects, **tsgoya**, living in the water. A yellow minnow **amatke** was part of a cure for indigestion.

Several fishes were subjects of the mythology of Cherokee Country. The horneyhead fish **ugvsdelli** appeared only in the spring and was noted for having horns or projections on its nose and red spots for piling stones in the water. When its red coloring faded after spawning, according to the Cherokee, it changed into a bloody-mouthed lizard **giga-juholi**. The redhorse **oliga** was believed to transform into a scissor tailed flycatcher since both the bird and fish had red spots and long forked tails.

Both the red crayfish and the green crayfish have contributed to the needs of the Cherokee People, the green crayfish **Tsi·stv·na** is eaten, while the red crayfish **Tsi·sko·ki·li** is valued for its medicinal properties.

Favorite Fishing Holes



Favorite Fishing Holes. The best fishing holes are those kept secret, enjoyed with a friend on the first day of trout season, or a favorite retreat with a grandchild on a quite afternoon. Any of the rivers, lakes, streams, or tumbling creeks of Cherokee Country are a great place to fish, depending on what species you seek and whether you choose to fish alone, from the bank, by wading, or from a boat. Here a few popular fishing holes and some methods to explore.

Whatever the site, show respect for the stream, the fish, and other fishermen by carrying your trash to a proper place for disposal.

Snowbird Creek

Species: Rainbow trout, with speckled trout above Middle Falls

Access Points: Getting there requires several turns, from US 129 at Robbinsville. After leaving town, turn left on State Road 1127 (toward Joyce Kilmer Memorial Forest). Follow this winding, paved road until it crosses Big Snowbird Creek just above where the stream enters Lake Santeetlah. State Road 1115 will lead to gravel road (Forest Service Road 1120), that ends in a parking area at The Junction where the Big Snowbird Trail begins.

Techniques: Spinners and flies work well at Snowbird Creek. Look for the largest fish to lurk in the deepest pools. Try a Yellowhammer or Tellico Nymph wet fly in early spring. A Thunderhead dry fly will invite lightning-fast strikes in during May and June.

Ravensford at Raven Fork

Access Points: Ravensford is just north of Cherokee, easily reached from Big Cove Road. Several roadside areas provide parking and paths lead to the junction of the Oconaluftee River and Raven Fork.

Techniques: Spinners and flies work well at Ravensford. Look for the largest fish to lurk along undercut banks and in the deepest pools.

Notes: A daily tribal fishing permit is required to fish at Ravensford.

Fishes at Ravensford – This is an example of the diversity of fishes found in our large streams of Cherokee Country. Fishermen may catch trout, smallmouth bass, or northern hogsucker - they may never see any of the 20 other species fish that swim at their feet.

1. *Ichthyomyzon greeleyi* Mountain Brook Lamprey
2. *Oncorhynchus mykiss* Rainbow Trout
3. *Salmo trutta* Brown Trout
4. *Salvelinus fontinalis* Brook Trout
5. *Campostoma anomalum* Central Stoneroller
6. *Clinostomus funduloides* Rosyside Dace
7. *Luxilus coccogenis* Warpaint Shiner
8. *Nocomis micropogon* River Chub
9. *Notropis leuciodus* Tennessee Shiner
10. *Notropis photogenis** Silver Shiner
11. *Notropis spectrunculus* Mirror Shiner
12. *Notropis telescopus* Telescope Shiner
13. *Phenacobius crassilabrum*** Fatlips Minnow
14. *Rhinichthys cataractae* Longnose Dace
15. *Semotilus atromaculatus* Creek Chub
16. *Hypentelium nigricans* Northern Hogsucker
17. *Moxostoma duquesnei* Black Redhorse
18. *Ambloplites rupestris* Rock Bass
19. *Micropterus dolomieu* Smallmouth Bass
20. *Etheostoma blennioides* Greenside Darter
21. *Etheostoma chlorobranchium* Greenfin Darter
22. *Etheostoma vulneratum* Wounded Darter
23. *Percina evides* Gilt Darter
24. *Cottus bairdi* Mottled Sculpin

Fishing Regulations

On the Cherokee Reservation, over 30 miles of streams on the Cherokee Indian Reservation are stocked regularly by the Cherokee Fish and Game Management with nearly 400,000 trout annually. These fish are in addition to the existing population of fish swimming in the crystal clear mountain waters. These supplemental stockings include rainbow, brook and brown trout of various sizes ranging up to trophy size. A tribal permit for each person 12 years of age and over is required to fish in Cherokee streams and ponds. Children under twelve are allowed to fish free with a permitted adult. Two, three, and five-day permits or a season permit are available at a reduced rate. No other type of fishing license is required nor accepted on the reservation. Nearly two dozen businesses in Cherokee are authorized outlets for fishing permits. Most of March is closed to fishing with the annual season opening the last Saturday of March, continuing for eleven months and ending the last day of February the following year. Throughout the season, fishing is allowed from one-half hour before sunrise to one-half hour after sunset. Creel limit is ten trout per day per permit holder. For those interested in experiencing fishing on the Reservation but wishing to avoid the streams, three well-stocked ponds are located on Big Cove Road in front of the KOA Campground. A tribal permit is required to fish in the ponds and the same hours apply as for the streams. All rivers and ponds are open everyday for fishing.

Exact fishing areas are detailed in a brochure published by Fish and Game Management and available at all locations where permits are sold and at the Cherokee Visitors Center, located in downtown Cherokee. The main fishing areas are known as Raven Fork, Soco Creek and the Oconaluftee River. The popularity of Cherokee as one of the country's top places for trout fishing can be attested to by the annual issuance of over 70,000 permits. While this number may produce an image of shoulder-to-shoulder fishermen, it is easy to find a place - even on busy days - where anglers can fish without encountering a fellow sportsman. Even experienced fishermen will find excellent fishing in the Oconaluftee River in the downtown area of Cherokee where visitors can watch as the fishing "game" is played. In recent years, Reservation waters have yielded trout which have captured North Carolina records: one for a seven pound, seven ounce brook trout and a 15 pound, eight ounce brown trout. Expert assistance is available from tackle shops in downtown Cherokee. Regardless of age or experience, fishing can be a fascinating addition to other vacation activities on the Reservation.

For complete fishing information at Cherokee contact:
Cherokee Fish and Game Management
P. O. Box 302
Cherokee, NC 28719

Or the Cherokee Visitors Center by phone at 1-800-438-1601
P. O. Box 460
Cherokee, NC 28719

Outside of the Reservation, the North Carolina Wildlife Resources Commission is North Carolina's wildlife management body. Information is available from **www.ncwildlife.org** - please check their web site for up to date information about licenses and regulations. Make sure your license is up to date and you follow all the regulations.

To fish in the Great Smoky Mountains National Park, you need a valid Tennessee or North Carolina fishing license. Licenses are not available in the Park, but can be obtained from sources in the towns adjacent to the Park. Fishing is permitted year round in the Smokies from one-half hour before sunrise to one-half hour after sunset. Know your fish before you go - - the possession of brook trout (brookie) is prohibited. A combination of five rainbow and brown trout per day (minimum 7 inches) is the limit. Only artificial lures and flies may be used, and only one hand-held rod is permitted. Some streams are closed to fishing to protect and study the threatened brook trout. Stop by a ranger station to obtain maps and get answers to questions.

Special Fishing Events at Cherokee

August – first Friday/Saturday **Talking Trees Children's Trout Derby**
Cherokee Indian Fair Grounds

The Talking Trees Children's Trout Derby has entertained an average of 1,000 children annually. Also included are fly-tying exhibitions, fish-cleaning stations, food, music, door prizes and trophies. This is a free event for children ages eleven and under.

September – second weekend **Trout-Fishing Event**
Cherokee Welcome Center

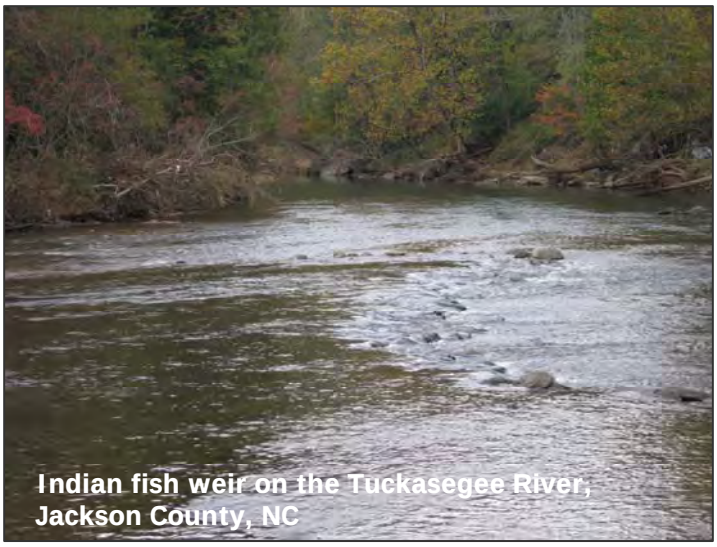
Fall trout-fishing tournament that challenges adults to catch fish and win prizes. There is an event entry fee, and each person fishing must purchase a fishing permit from Cherokee Fish and Game

Cherokee Fishing Techniques

Weirs or fish traps. The importance of fishes to the Cherokee is obvious throughout the larger streams of Cherokee Country where ancient V-shaped weirs stand as monuments visible during late summer as river flows lower. These rock weirs are located throughout Cherokee Country wherever the large villages were alongside major streams.

These ingenious devices allowed for huge quantities of fish to be taken at one time. Weirs were constructed on large streams and rivers at the lower end of large pools or where natural rock formations formed natural constrictions. Usually there are two lines of boulders that form a V-shape with the narrow end pointing downstream. The short wall extended above the water line during lower water, usually late summer and fall. The V-shaped rocks funneled fish into a woven cane or log trap. Fish were then easily captured from the traps and carried to shore. Many of these fish traps have been lost or flooded by impoundments. These fish traps were landmarks to the Cherokee people - - **Uniga'yata'ti'yi** "where they made a fish trap," from **uga'yatun'i**, fish trap, and **yi,** locative for place; refers to a place on the Tuckasegee river, at the mouth of Deep Creek, near Bryson City.

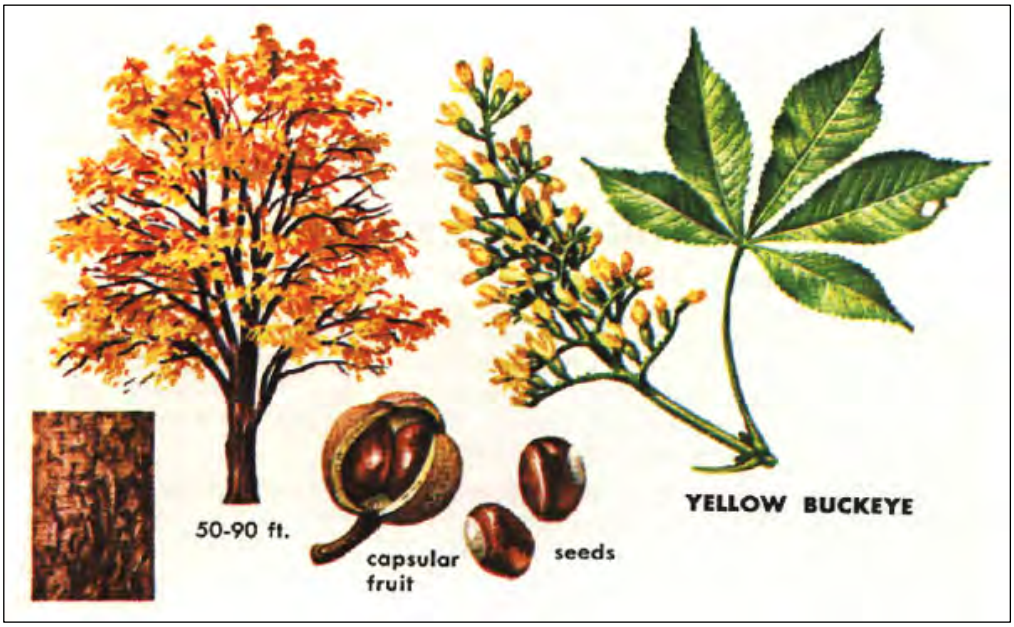
Indian fish basket



Indian fish weir on the Tuckasegee River, Jackson County, NC

Stupifying chemicals. The Cherokees used poisons from several native plants routinely when fishing. The drugging of fish was practiced during the dry months of late summer and early fall when streamflow in mountain streams is often low, thereby creating a series of small pools with high concentrations of fish. The plants commonly used to capture fish were yellow buckeye, walnut, and goat's rue, which is also known as devil's shoestrings or catgut. Buckeye nuts were ground up and thrown into the pools of water. The poison released is aesculin. This toxin caused the fish to float to the surface where they could be easily collected with long-handled baskets. The Cherokees and other Indian tribes in the Southeast also collected goat's rue and ground it up on posts resting on the bottom of a pool. Shortly after the ground plant fell into the water, paralyzed fish would float to the surface for collection. The toxic substance in goat's rue is rotenone, which is the principal ingredient in various insecticides and modern fish poisons. By attacking the nervous system of the fish, rotenone did not poison the meat in any way.


Goat's rue



Hook and line, spears and nets. The Cherokee ancestors also speared fish, caught them with lines and bone hooks, shot them with bows and arrows, and grabbed them with their bare hands. Net weights were fashioned by forming a smooth groove around rock. Nets were fashioned from hemp with cane handles.

Fish hook on left, showing how it was made from deer bone.

Then...

Photo from James Mooney Collection, Western Carolina , about 1888. Hunter Library, Western Carolina University

Cherokee students listen closely to a streamside presentation about water quality.

...And Now

There is an urgent need to understand, teach, and demonstrate the Cherokee uses of fish as part of the culture, the diet, and history. This can be as simple as searching out to catalog the ancient fish weirs across Cherokee Country, or taking a group of children to relive this part of their culture.

Native Fish;

Knottyhead - DGJᏫ
Mumblehead - IrᏫTᏯ
Hornyhead - DGJᏫ
Whitehead - ᎤᏁS ᎤᏫS
Red side minnow - ᎽSᏢ JhSGᎤ
Silver side minnow - ᎤIrᏫᏓMᎽᏫᎽ JhSGᎤ
Flutter fish -
Redhorse - ᏯᏢS
Hogsucker - ᏓGS
White sucker - ᎤᏁS ᏓGS
Speckled trout - ᎤᎤGᏓ
Brook trout -
Water dog - JG
Hellbender -
Tadpole / frogs - JᎽIr / GGᏏ
Salamander - SᏧS
Crawfish - IrᏫᎵᎾ
Snail - R W T
Leech - ᏯᎹᏯ
Snake like fish - CSS

Cherokee Alphabet.

Ꭰ a	Ꭱ e	Ꭲ i	Ꭳ o	Ꭴ u	Ꭵ v
Ꭶ ga Ꭷ ka	Ꭸ ge	Ꭹ gi	Ꭺ go	Ꭻ gu	Ꭼ gv
Ꭽ ha	Ꭾ he	Ꭿ hi	Ꮀ ho	Ꮁ hu	Ꮂ hv
Ꮃ la	Ꮄ le	Ꮅ li	Ꮆ lo	Ꮇ lu	Ꮈ lv
Ꮉ ma	Ꮊ me	Ꮋ mi	Ꮌ mo	Ꮍ mu	
Ꮎ na Ꮏ hna Ꮐ nah	Ꮑ ne	Ꮒ ni	Ꮓ no	Ꮔ nu	Ꮕ nv
Ꮖ qua	Ꮗ que	Ꮘ qui	Ꮙ quo	Ꮚ quu	Ꮛ quv
Ꮜ sa Ꮝ s	Ꮞ se	Ꮟ si	Ꮠ so	Ꮡ su	Ꮢ sv
Ꮣ da Ꮤ ta	Ꮥ de Ꮦ te	Ꮧ di Ꮨ ti	Ꮩ do	Ꮪ du	Ꮫ dv
Ꮬ dla Ꮭ tla	Ꮮ tle	Ꮯ tli	Ꮰ tlo	Ꮱ tlu	Ꮲ tlv
Ꮳ tsa	Ꮴ tse	Ꮵ tsi	Ꮶ tso	Ꮷ tsu	Ꮸ tsv
Ꮹ wa	Ꮺ we	Ꮻ wi	Ꮼ wo	Ꮽ wu	Ꮾ wv
Ꮿ ya	Ᏸ ye	Ᏹ yi	Ᏺ yo	Ᏻ yu	Ᏼ yv

Sounds represented by Vowels.

a, as a in father, or short as a in rival
e, as a in hate, or short as e in met
i, as i in pique, or short as i in pit
o, as aw in law, or short as o in not
u, as oo in fool, or short as u in pull
v, as u in but, nasalized

Consonant Sounds

g nearly as in English, but approaching to k. d nearly as in English but approaching to t. h k l m n q s t w y, as in English. Syllables beginning with g, except Ꭶ have sometimes the power of k. Ꭺ Ꮪ Ꮫ are sometimes sounded to, tu, tv, and Syllables written with tl except Ꮭ sometimes vary to dl.

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