

# Virginia Brook Trout Conservation Strategies

## Background

Virginia has one of the strongest native brook trout resources in the Southeast. Of the 2350 miles of wild trout resource identified, approximately 80% remains brook trout. Wild brook trout populations are generally limited to higher elevations in the western mountains of the state. However, brook trout were once found throughout the limestone spring creeks in the Great Valley region located between the Blue Ridge and Allegheny mountain ranges and along some of the smaller tributaries of the Potomac at least as far east as Fairfax County. Most of the valley limestone stream populations were likely extirpated a century or more ago with the agricultural development of the valley but some persisted as late as the mid-1960s. The populations within Potomac River tributaries were known to be strong through the 1950s and still persisted as late as the early 1980s. These populations were eliminated with residential development of the region. It is estimated that at least 38% of the original brook trout populations have been extirpated.

Most of the remaining populations are well protected from landuse changes due to public ownership. Land management agencies include the George Washington and Jefferson National Forest, the Shenandoah National Park and scattered holdings of the Virginia Department of Game and Inland Fisheries. One significant area of private watershed ownership of high quality wild brook trout streams occurs in the Blue Ridge Plateau area of Floyd, Carroll and Patrick Counties.

Virginia has had a complete inventory of trout waters since 1980. This inventory is continually updated providing a 30 year historical record. The dividing line between the natural ranges of the northern and southern strain of brook trout occurs within Virginia. Southern Appalachian brook trout were originally found from the New River drainage south while the northern strain was found from the James drainage north. Historically, it is thought that the Atlantic slope drainages from the Roanoke River in Virginia, south, did not contain brook trout although wild populations are now found in many headwater areas within these drainages. Virginia is currently in the process of genetically typing brook trout populations from the New River south. This analysis is scheduled for completion by December, 2008.

### **Priority 1: Provide long-term protection for all intact watersheds.**

#### **1.1 Protect brook trout habitat through permitting process.**

**Strategy:** Work closely with state and federal permitting agencies (DEQ, COE & VMRC) to avoid or minimize potential impact to brook trout habitat or water quality.

## **1.2 Protect all brook trout habitat on public lands.**

**Strategy:** work with land management agencies in their planning processes to insure habitats that support populations are protected.

**Strategy:** work with land management and resources agencies to insure that brook trout, as the only native trout species in Virginia, is given the highest priority in trout management plans.

**Strategy:** develop management plans that protect the genetic integrity of native brook trout populations.

## **1.3 Protect critical brook trout habitat on private land.**

**Strategy:** Work with private landowners to protect, enhance or re-establish good riparian corridors on all brook trout waters by assisting them with utilizing existing land conservation programs (EQIP, WHIP, CREP, etc.)

**Strategy:** Work with private landowners to establish conservation easements on brook trout waters.

**Strategy:** Work with local jurisdictions to identify quality brook trout habitat within their jurisdiction and establish protection through local ordinance and proffers prior to development.

**Strategy:** Identify a prioritized list of quality brook trout waters and establish a funding source for acquisition.

**Strategy:** minimize stocking impacts on wild brook trout population through the agency's stocking policies and by controlling private stocking through the agency's stocking authorization requirements.

**Strategy:** partner with local jurisdictions and developers to determine if strong watershed protection measures applied to a developing watershed can ensure a viable brook trout fishery.

**Strategy:** develop management plans that protect the genetic integrity of native brook trout populations.

## **1.4 Strengthen at least xx intact watersheds over the next 5 years.**

**Strategy:** improve existing population level by instream habitat improvement, liming, etc.

**Strategy:** improve watershed quality by excluding livestock, re-establishing riparian habitat, reforestation, sediment reduction, etc.

**Strategy:** re-establish connectivity between watershed populations and extend brook trout populations to new stream reaches.

## **Priority 2: Habitat and Population Restoration**

### **2.1 Re-establish self-sustaining brook trout populations in at least xx watersheds over the next 5 years.**

**Strategy:** restock wild brook trout into stream habitats that are currently suitable for wild trout but where populations are not available to re-establish naturally.

**Strategy:** re-establish connectivity through barrier removal or habitat improvement.

**Strategy:** use historic brook trout distribution information, current landuse data, water quality data and location of spring sources to develop a list of streams that could be restored with a high potential likelihood for success.

**Strategy:** work with private landowners to restore the biological integrity of extirpated brook trout watersheds through restoration of riparian habitat, stream channel restoration and re-introduction of native fish.

**Strategy:** consider exotic species removal where appropriate.

**Strategy:** use existing stream water quality databases and supplemental water quality analysis to identify acidified streams that could be restored through liming.

**Strategy:** Secure conservation easements or purchase stream segments where possible to protect restored stream reaches.

### **2.2 Improve xx reduced watersheds by strengthening the existing brook trout population, increasing the number of brook trout populations within the drainage or extending the range of existing populations.**

**Strategy:** Develop a list of potential projects based on brook trout distribution data, land ownership, likelihood for success and angler access.

**Strategy:** Use the state's restoration biologists to develop natural stream designs for habitat restoration projects.

**Strategy:** re-establish connectivity through barrier removal or habitat improvement.

**Strategy:** use existing stream water quality databases and supplemental water quality analysis to identify acidified streams that could be restored through liming.

**Strategy:** consider exotic species removal where appropriate

**Priority 3**     **Protect the genetic integrity of Virginia's native brook trout populations.**

**3.1**            **Conserve Virginia's native, southern Appalachian brook trout.**

**Strategy:** Complete genetic typing of trout populations within the historic range of southern Appalachian brook trout.

**Strategy:** Develop a comprehensive management plan to protect the genetic integrity of remaining southern Appalachian brook trout populations and restore populations where appropriate.

**Priority 4: Assessment**

**4.1**            **Complete Virginia's brook trout genetics assessment.**

**Strategy:** Complete genetic analysis of population samples through contract with Virginia Tech by December, 2008.

**4.2**            **Validate the classification of all predicted watersheds in Virginia within five years**

**Strategy:** review historic data, meet with area biologists and sample where needed all predicted watersheds to determine classification.

**4.3**            **Annually monitor Virginia's brook trout populations to maintain a current database and measure changes in brook trout distribution and health.**

**Strategy:** Continue annual monitoring program for brook trout streams that updates data for individual streams at least once every 7 years.

**Strategy:** monitor watersheds and stream segments where restoration and improvement projects have been completed to assess success.

**4.4 Monitor the impact of acid deposition on brook trout populations.**

**Strategy:** Continue biennial sampling of established sampling stations that vary in sensitive to acidification.

**Strategy:** Continue to assist as appropriate with collection of water samples for the UVA Virginia Stream Sensitive Study.

**Priority 5: Outreach**

**5.1 Create/enhance public interest in brook trout.**

**Strategy:** Produce and employ educational materials (e.g., maps, brochures, posters, articles, videos, live fish displays, etc.) highlighting the importance of Virginia's brook trout and associated management activities. Venues include the agency website and magazine, schools, stakeholder meetings, and fishing shows.

**Strategy:** Promote the Eastern Brook Trout Joint Venture (EBTJV) on the agency web site and other media outlets.

**5.2 Increase landowner participation in habitat improvement programs.**

**Strategy:** Publicize (via the agency website, magazine, and other outlets) information regarding all current Federal and State grants and programs available to landowners for protecting and improving water quality and habitat in brook trout streams. Provide technical assistance as needed.

**5.3 Develop relationships that foster brook trout conservation.**

**Strategy:** Facilitate achievement of brook trout conservation goals by establishing relationships with NGOs, city and county governments, land trusts, and other organizations.

**Priority 5: Recreational Fishing**

**5.1 Provide recreational fishing access to brook trout waters.**

**Strategy:** Maintain current public access to brook trout waters on both public and private lands.

**Strategy:** Pursue public fishing access to quality private brook trout waters through cooperative agreements, public easement, access fee or fee-simple ownership

**5.2 Maximize fishing opportunity through regulation.**

**Strategy:** Monitor populations to determine if angling pressure is adversely impacting brook trout populations.

**Strategy:** Insure optimum populations of brook trout are available for anglers through the appropriate use of size, creel and gear restrictions.

**Strategy:** Conduct periodic creel surveys on selected brook trout waters to determine angler use, harvest, and preferences.

**5.3 Encourage landowners to open brook trout waters to public fishing.**

**Strategy:** Develop an incentive program that encourages landowners to allow public fishing. This could include recognition programs, tax incentives, conservation easements or other financial incentives.

**5.4 Resolve stream ownership issues.**

**Strategy:** Seek clarification through legal or legislative means to the question of whether Virginia stream bottoms are privately or publicly held.