

**Current Status of Experimental
Paired-Watershed Research in the
USDA Forest Service**

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The first paired-watershed experiment on forested lands in the United States was conducted by the USDA Forest Service from 1909-1928 near Wagon Wheel Gap in Colorado. By the 1930's, experimental watershed studies had been initiated in southern California (San Dimas), Arizona (Sierra Ancha), and North Carolina (Coweeta). By the 1960's, there were 150 forested experimental watersheds being studied throughout the United States. Today, only a handful of these installations remain active. The trend of terminating long-term paired-watershed studies is not unique to the United States. Many organizations throughout the World have decided that such studies require more effort and funding than is presently available. The concept of most watershed experiments has been to monitor several watersheds for a short pre-treatment period to establish a relationship between watersheds, conduct treatments, and then evaluate effects for a short period after treatment. Few watershed studies continue for the period required for some treatment effects to become evident or for fully returning to pretreatment condition. As a consequence, there are not only a small number of experimental watersheds currently in operation; there are even fewer watersheds with continuous long-term records. Long-term, experimental, paired-watershed research facilities that measure streamflow (with date of initiation) are currently operating by the USDA Forest Service in Alaska (Bonanza-Poker Creeks, 1978), California (Caspar Creek, 1962, and San Dimas, 1940), Colorado (Frasier, 1940), Maryland (Baltimore, 1998), Minnesota (Marcell, 1960), North Carolina (Coweeta, 1934), New Hampshire (Hubbard Brook, 1956), Oregon (H.J. Andrews, 1953), Puerto Rico (Luquillo, 1970), South Carolina (Santee, 1963), West Virginia (Fernow, 1951), and Wyoming (Glacier Lakes, 1987). Six of these (H.J. Andrews, Baltimore, Coweeta, Bonanza-Poker Creeks, Hubbard Brook, and Luquillo) are members of the Long Term Ecological Research (LTER) network and are centers of intensive, integrated ecosystem studies. All of the study watersheds are used to investigate the effects of forest land management on a variety of watershed values. The Forest Service has recently initiated an effort to make data available electronically from these watersheds and from others that have been terminated, but have historic data.

USDA FOREST SERVICE EXPERIMENTAL WATERSHEDS

([790KB jpg of poster](#))

CALIFORNIA

Caspar Creek

39°22'N 123°45'W

25 streamgages; 10 – 473 ha; 40 – 330 m elevation; redwood, grand fir, Douglas-fir

1962 – present

Poster: North Fork Caspar Creek; 473 ha; 22 yrs (1963-1984) unlogged period

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<http://www.rsl.psw.fs.fed.us/projects/water/caspar.html>

San Dimas

33°10'N 117°48'W

6 streamgages; 15 – 354 ha; 400 – 1700 m elevation; chaparral (ceanothus, manzanita)

1939 – present

Poster: Wolfskill Canyon; 619 ha; 21 yrs

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<http://www.rfl.psw.fs.fed.us/prefire/sdefhtml>

COLORADO

Fraser Experimental Forest

39°54'N 105°56'W

6 streamgages; 40 – 803 ha; 2680 – 3900 m elevation; Engelmann spruce, subalpine fir, lodgepole pine

1940 – present

Poster: Lexen Creek; 124 ha; 30 yrs

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<http://www.fs.fed.us/rm/main/labs/ftcollins/rmrs4352.html>

IDAHO

Silver Creek

44°25'N 115°45'W

8 streamgages; 40 – 200 ha; 1370 – 2440 m elevation; Ponderosa pine, Douglas-fir

1965 – 1995

Poster: Cabin Creek; 110 ha; 12 yrs

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MINNESOTA

Marcell

47°32'N 93°28'W

6 streamgages; 7 – 150 ha; 410 – 440 m elevation, aspen/birch, peatland with black spruce/tamarack

1961 – present

Poster: Marcell 2; 7 ha; 39 yrs

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NEW HAMPSHIRE

Hubbard Brook

43°56'N 71°46'W

10 streamgages; 12 – 76 ha; 440 – 910 m elevation; mixed hardwoods (sugar maple, yellow birch, beech)

1956 – present

Poster: Watershed; 42 ha; 37 yrs

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<http://www.hbrook.sr.unh.edu/>

NORTH CAROLINA

Coweeta

35°04'N 83°23'W

32 streamgages (17 currently operational); 3 – 760 ha; 680 – 1590 m elevation; four major forest types (northern hardwoods, cove hardwoods, oak (-chestnut), and oak-pine).

1934 – present

Poster: Watershed 2; 12 ha; 58 yrs

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OREGON

H.J. Andrews

44°13'N 122°16'W

10 streamgages; 13 – 1642 ha; 420 – 1620 m elevation; Douglas-fir, western hemlock, western redcedar

1952 – present

Poster: Watershed 2; 60 ha; 39 yrs

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PUERTO RICO

Luquillo

18°18'N 65°50'W

10 streamgages; 6 – 2200 ha; 200 – 1000 m elevation; Tabonuco, Colorado, Palm, and Dwarf forest types

1988 – present

Poster: Bisley Watershed 3; 35 ha; 8 yrs

Frederick N. Scatena, International Institute of Tropical Forestry, P.O. Box 25000, Rio Piedras, PR 00928

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<http://www.fs.fed.us/global/iitf/research/ecosyste/watershe/watershe.html>

SOUTH CAROLINA

Santee

33°15'N 79°06'W

2 streamgages; 160 – 200 ha; 0 – 5 m elevation; loblolly and longleaf pines, bottomland hardwoods

1968 – present

Poster: Watershed 80; 200 ha; 24 yrs

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<http://www.srs.fs.fed.us/charleston/santee.html>

WEST VIRGINIA

Fernow

39°05'N 79°41'W

9 streamgages; 13 – 39 ha; 530 – 1110 m elevation; hardwood forest: northern red oak, chestnut oak, white oak, beech, sugar maple, yellow poplar, etc.

1951 – present

Poster: Watershed 4; 39 ha; 40 yrs

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<http://www.fs.fed.us/ne/parsons/fehome.htm>

WYOMING

Glacier Lakes Catchments

41°23'N 106°16'W

4 streamgages; 8 – 61 ha; 3270 – 3660 m elevation; alpine meadow, krummholtz, spruce-fir

1986 – present

Poster: W. Glacier Lake; 61 ha; 3 yrs (1988–1990)

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<http://lamar.colostate.edu/~rwu4451/glees/index.htm>

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