

Aton Forest Research and Conservation Projects

American Chestnut Study

INITIATED: 2009

LOCATION: Near The Ledges and east of AF Headquarters

OBJECTIVES: Compare similar situations at two chestnut sites (Aton Forest, CT and Harvard Forest, MA) in the oak-chestnut/northern-hardwood transition zone. What can a careful comparison of the conditions at the two sites say about the factors that encouraged or discouraged establishment of chestnut seedlings in the years before 1910 when chestnut trees in the woodland core were producing abundant seed? In 2009 student intern Christine Caddigan (made possible by the Connecticut Chapter of The American Chestnut Foundation) and Dr. Paillet began the data collection.

DESIGN: Reconstruct site history using these methods:

- Map locations of living chestnut sprouts and wood (stumps, logs, leaning snags) that indicate where chestnut seedlings and chestnut trees were growing when blight arrived
- Map terrain features such as: forest type and structure, topographic position, stone walls, roads and pathways, and evidence of logging.
- Consult Egler field notes and other historic land use records (taxes, titles, etc) to infer past land use history and location of parcel boundaries
- Field characterization of parcels and land units using stand character (shape of trees), presence of plow horizon in soil, and presence of pasture indicators (barberry and juniper thickets)
- Use tree ring series to characterize the ages and life histories of individual trees from key locations

PRINCIPAL INVESTIGATOR: Fred Paillet

REPORTS: The ultimate product will be a report (possible MS thesis) to be summarized as a technical journal article. The student or students doing the field work would be expected to do a significant part of the preparation and writing, and would be listed as authors. First reports expected in 2011.

The Playground Restoration Project

INITIATED: 2008

LOCATION: AF Headquarters

OBJECTIVES: Restore Dr. Egler's garden known as "The Playground" by eliminating weeds and invasive plants and replanting garden.

DESIGN: Organize Dr. Egler's garden and naturalization files. Create a garden bed design. Coordinate volunteers to perform clean up, replanting and weeding. Maintain records of plantings and weed control.

PRINCIPAL INVESTIGATORS: John Anderson and Judith Dreyer

REPORTS: First reports expected in 2010.

Lone Oak Field Project

INITIATED: 2008

LOCATION: Lone Oak Field, AF

OBJECTIVES: This project has been modified and treatment postponed until 2010. The intent is to convert an old hayfield to a cover-type of primarily native meadow plants with patches of warm-season grasses, primarily for the benefit of meadowland birds and to study the efficacy of this cover-type conversion.

DESIGN: Treat existing vegetation with an herbicide and burning using a handheld torch. Patches will be cultivated or burned prior to planting warm-season grass and wildflower species. Mow or burn annually and control woody growth for minimum of five years. Establish vegetation sample plots to record plant species occurrence and abundance. Maintain records of weed control and native plant establishment and survival.

PRINCIPAL INVESTIGATORS: John Anderson and Judy Wilson
(Connecticut DEP LIP program)

REPORTS: First reports expected in 2010.

AF History Project

INITIATED: 2006

LOCATION: Records maintained at AF Headquarters

OBJECTIVES: Collect written and oral histories regarding Dr. Egler.

DESIGN: Interview friends and colleagues of Dr. Egler; record on DVDs. Maintain files of Egler biographical information.

PRINCIPAL INVESTIGATORS: Glenn Dreyer and Alesia Maltz

REPORTS: DVDs and files maintained at AF Headquarters.

Plant Community Descriptions

INITIATED: 2006

LOCATION: Throughout AF.

OBJECTIVES: Identify, describe and map the plant communities of AF; establish permanent plots for long-term study of plant community dynamics.

DESIGN: A plot-transect approach to derive information on representative and uncommon plant communities with AF; transects laid out along an elevation gradient; permanent plots located within selected plant communities as encountered along each transect line; primary data collected on all plant species and their percent coverage within nine vegetation structural layers, and environmental data (topographic and soils); interns will assist in the data collection.

PRINCIPAL INVESTIGATORS: John Anderson.

REPORTS: To be reported in 2010.

Herbarium Collection

INITIATED: 2006

LOCATION: Specimens collected throughout AF; collection maintained at AF Log Cabin.

OBJECTIVES: Establish a permanent herbarium collection of the vascular plants, mosses and lichens of AF for reference use and to voucher species occurrences.

DESIGN: Collect as many plants as possible throughout AF, primarily in flower, but also in other states (seedling, immature, fruiting, and dormant); interns will do most of the collecting, pressing and mounting of specimens under the supervision of the principal investigator.

PRINCIPAL INVESTIGATOR: John Anderson.

REPORTS: Anderson reported in the AF Fellow's Annual Reports in 2006 and 2009; a list of the specimens is maintained and updated as necessary.

Ruffed Grouse Drumming Survey

INITIATED: 2006

LOCATION: AF and Connecticut.

OBJECTIVES: Determine population trends of Ruffed Grouse in Connecticut.

DESIGN: Point-count method; one line crossing AF east to west, run at sunrise for two days in April; ten data collection points every 200 meters; record number of drums and birds heard each point during 4-minute intervals; report to CT-DEP Wildlife Unit on state-prepared forms.

PRINCIPAL INVESTIGATORS: Michael Aurelia and John Anderson

REPORTS: Anderson reported in Executive Director's report since June 2006.

Northern Flying Squirrel Study

INITIATED: 2005

LOCATION: Throughout AF and northern Connecticut.

OBJECTIVES: Determine the status of the Northern Flying Squirrel in Connecticut.

DESIGN: Use nesting boxes and live-trapping to locate populations of this species.

PRINCIPAL INVESTIGATORS: James Fischer

REPORTS: Fischer submitted an initial report in April 2006.

Rare plant Survey

INITIATED: 2005

LOCATION: Throughout AF.

OBJECTIVES: Survey for rare plants and identification of potential rare plant habitats.

DESIGN: Field reconnaissance and survey of predetermined priority survey areas for rare plants and their potential habitats; record and map any occurrences of rare plants; report to the CT-DEP-NDDDB to document rare plant populations.

PRINCIPAL INVESTIGATORS: William Moorehead

REPORTS: Moorehead submitted an initial report in April 2006.

Vernal Pool Inventory

INITIATED: 2005

LOCATION: Throughout AF and Town of Norfolk.

OBJECTIVES: Identify, describe and map as many vernal pools throughout the Town of Norfolk as possible.

DESIGN: An aerial photo interpretation produced a map of potential vernal pools; volunteers conduct field searches of areas identified as likely to have vernal pools based on the aerial photo interpretation and an informal survey of people familiar with the town environs; area covered includes lands open to the public and private lands with permission; the sites will be located by GPS coordinates and mapped; primary data collected include location, size, surrounding habitat, presence of vernal pool identifiers (primarily certain amphibian egg masses or larvae).

PRINCIPAL INVESTIGATORS: John Anderson, Alex persons, Libby Borden, and Shelley Harms

REPORTS: Anderson has reported on this study in Executive Director's reports from 2005 – 2007 and the AF Fellow's Annual Reports from 2006 - 2009; a map of these sites is expected in three years.

Flowering Phenology Study

INITIATED: 2004

LOCATION: Throughout AF.

OBJECTIVES: Analyze for trends Dr. Egler's 30 years of data on flowering phenology at AF and compare with recent flowering data.

DESIGN: Organize and standardize Egler's data on flowering periods of selected species to allow comparisons within this data set and with more recently gathered data.

PRINCIPAL INVESTIGATORS: John Anderson.

REPORTS: Anderson reported in the AF Fellow's Annual Reports in 2004 and 2005

Old-field Restoration and Stabilization

INITIATED: 2003

LOCATION: Old fields within AF.

OBJECTIVES: Restore, stabilize or establish old-field vegetation within AF; remove invasive plant species in these areas and encourage or plant desirable species.

DESIGN: Manual, chemical and biological techniques will be used to remove undesirable species; the affects and effectiveness of these treatments will be evaluated; methods to encourage or establish desirable species will be investigated.

PRINCIPAL INVESTIGATOR: John Anderson; cooperators include Nels Barrett (NRCS, WHIP program).

REPORTS: Anderson reported in the AF Fellow's Annual Reports from 2004 - 2009.

Forest Inventory

INITIATED: 2003

LOCATION: Throughout AF.

OBJECTIVES: Identify, describe and map the vegetation cover types of AF.

DESIGN: A plot transect data gathering approach to derive information on

soil type, hydrology, geology, topography, wetlands, and vegetation; transects laid out at a width of 1000 feet between lines; data gathering points at 500-foot intervals along each transect line; data on tree basal area by species and canopy-position class gathered using a forester's prism at each point location. PRINCIPAL INVESTIGATORS: Starling Childs and Anthony Irving (EECOS) and John Anderson. REPORTS: Childs and Irving submitted reports in June and October 2003.

Breeding Bird Survey

INITIATED: 2002

LOCATION: Throughout AF.

OBJECTIVES: Identify the bird species breeding or resident within AF habitat types and estimate their population levels and trends.

DESIGN: Point-count method; three lines crossing AF east to west, run at sunrise on 3 consecutive days (except for rain dates) in mid-May (2003 only), mid-June and mid-July; data collection points every 200 meters; record birds heard or seen during 3-, 5- and 10-minute intervals; birds heard or seen between point-count intervals are also noted.

PRINCIPAL INVESTIGATORS: Bob Moeller, Shelley Harms and John Anderson.

REPORTS: Harms produced summary reports in 2003 – 2005; article published in the *Connecticut Warbler*, April 2008.

Monitoring Avian Productivity and Survivorship project (MAPS)

INITIATED: 2002

LOCATION: AF and North America.

OBJECTIVES: Provide annual indices and estimates of land-bird population size, productivity and survivorship to help identify and describe population trends and ecological and habitat characteristics of target species throughout North America.

DESIGN: Establish a long-term mist netting station (one site at AF) consisting of 12 net sites; netting conducted for seven times, June – August, at ten days periods, from dawn to noon; nets are checked every 50 minutes; captured birds are banded (if not recaptures) and data collected include band number, species, age, sex, breeding condition, plumage information, wing cord, fat content, and weight.

PRINCIPAL INVESTIGATORS: Shelley Harms.

REPORTS: Harms produced summary reports from 2003 - 2009.

Connecticut Amphibian Monitoring Project (CAMP)

INITIATED: 2002

LOCATION: Throughout AF and Connecticut.

OBJECTIVES: Provide long-term systematic data collection on amphibian populations throughout Connecticut, promote awareness of conservation issues surrounding amphibians and identify thresholds of disturbance that different species tolerate and develop conservation recommendations.

DESIGN: Amphibian migration survey along roads at night after rain; survey breeding sites for the presence of eggs and larvae; survey streams and ponds for adults; nighttime spring frog call surveys.

PRINCIPAL INVESTIGATORS: Joseph Markow.

REPORTS: Markow produced summary reports from 2002 – 2009.

Egler Research Plots and Vegetation Map

INITIATED: 2000 (earlier by Egler)

LOCATION: Throughout Aton Forest.

OBJECTIVES: Develop a vegetation map of AF; re-establish the research plots of Dr. Frank Egler and collect the research notes/data coinciding with these plots; create a database for these plots; develop a procedure for plot assessment and monitoring.

DESIGN: Create a vegetation map from remotely sensed information and traditional vegetation survey techniques, and transform the map into a digital format; locate the extant research plots on Aton Forest established by Egler since 1925 and memorialize these plots by establishing permanent markers and labels and by mapping, preferably using coordinates determined by a Global Positioning System device or land survey equipment; collect the existing research notes of Egler and transform the information from these data into a form that can be incorporated into a database and Geographic Information System; re-establish long-term monitoring of these plots by developing a procedure for data collection and plot assessment that is compatible with, but not limited by, the computerized database

PRINCIPAL INVESTIGATOR: John Anderson, with assistance from Glenn Dreyer and Nels Barrett.

REPORTS: Anderson reported in annual AF Fellow's reports, 2001 – 2002; interim reports in 2002 and 2003; final report submitted 2004.

Hickory Southern Summit Vegetation Study

INITIATED: 2000 (earlier by Egler)

LOCATION: Knapp Hill and Chimney Hill summits within AF.

OBJECTIVES: Describe the vegetation of these summits-types and study their origins and stability.

DESIGN: Gather data on plant species composition, abundances and densities; describe the historic and contemporary regenerative abilities of the tree species present.

PRINCIPAL INVESTIGATOR: John Anderson.

REPORTS: Anderson reported in annual AF Fellow's reports, 2000 – 2002.

Porcupine Study

INITIATED: 2000

LOCATION: Porcupine den-sites and adjacent regions within AF.

OBJECTIVES: Describe the effects of porcupine on the forest vegetation of Aton Forest, with special attention to the town-line porcupine den-site on section C47 and the adjacent porcupine-created stunted woodland area and

attempt to determine the geographical, temporal and porcupine life-stage factors that have created this area.

DESIGN: Assess the disturbance porcupine feeding has had on Eastern Hemlock adjacent to den-sites; collect data on tree location and structure relative to the den-site and disturbance; describe porcupine behavior at the study site.

PRINCIPAL INVESTIGATOR: John Anderson.

REPORTS: Anderson reported in annual AF Fellow's reports, 2000 – 2002; a draft report was distributed to the board in April 2003.

Deer Hunt Study

INITIATED: 2000

LOCATION: Throughout AF.

OBJECTIVES: Evaluate the impact of hunting on the deer population within AF and monitor the health and condition of the herd.

DESIGN: Collect data on the numbers and locations of deer killed by hunters during the regular deer seasons within AF and gather any additional data to monitor the health and condition of the deer population.

PRINCIPAL INVESTIGATOR: John Anderson; cooperators are AF hunters.

REPORTS: Anderson reported annually in Executive Director's reports.