

## 8. Calcareous Forest

**Rarity Rank:** S2/G2?Q

**Synonyms:** Calcareous Hardwood Forest, Dry Calcareous Woodland, Blackland Hardwood Forest, Upland Hardwood Forest, Circum-Neutral Forest

**Ecological Systems:**

CES203.379 West Gulf Coastal Plain Southern Calcareous Prairie

CES203.378 West Gulf Coastal Plain Pine-Hardwood Forest

**General Description:**

This community occurs on calcareous substrata in the uplands of central, western and northwest Louisiana. It characteristically occurs on hills and slopes on either side of small creeks, at times in a mosaic with calcareous prairies. Associated geological formations so far identified are the same as for calcareous prairie. Soils are stiff calcareous clays, not quite as alkaline as in the prairies (surface pH ~ 6.5-7.5), with very high shrink-swell characteristics. Individual occurrences are usually of limited areal extent.



Common overstory species include *Quercus stellata* (post oak, often dominant), *Q. shumardii* (shumard oak), *Q. alba* (white oak), *Q. muhlenbergii* (chinkapin oak), *Carya myristiciformis* (nutmeg hickory), *C. ovata* (shagbark hickory), *C. tomentosa* (mockernut hickory), *Pinus echinata* (shortleaf pine), *P. taeda* (loblolly pine), *Fraxinus americana* (white ash), *Diospyros virginiana* (persimmon), *Liquidambar styraciflua* (sweetgum), *Celtis* spp. (hackberries), *Gleditsia triacanthos* (honey locust), *Morus rubra* (red mulberry), *Fagus grandifolia* (beech), *Ulmus rubra* (slippery elm), *U. americana* (American elm), *U. alata* (winged elm), *U. crassifolia* (rock elm), and *Acer rubrum* (red maple). *Quercus sinuata* var. *sinuata* (Durand oak) and *Q. oglethorpensis* (Oglethorp oak) may rarely be present. Trees, especially pines, are often stunted and/or crooked due to extreme physical soil properties. Midstory and understory shrubs typically include *Viburnum rufidulum* (rusty blackhaw), *Crataegus* spp. (hawthorns), *Prunus mexicana* (Mexican plum), *Cercis canadensis* (red bud), *Chionanthus virginicus* (fringe-tree), *Asimina triloba* (paw-paw), *Ilex decidua* (deciduous holly), *Vaccinium arboreum* (winter huckleberry), *Rhamnus caroliniana* (Indian cherry), *Rhus copallina* (flame-leaf sumac), *Ostrya virginica* (hop-hornbeam), and *Aesculus pavia* (red buckeye). *Maclura pomifera* (osage-orange) may occur sporadically, especially in northwest Louisiana. The herbaceous layer may contain *Symphotrichum drummondii* (Drummond's aster), *Solidago auriculata* (auricled goldenrod), *Cynoglossum virginianum* (hound's-tounge), *Antennaria plantaginifolia*

(plantain-leaf pussy-toes), *Lithospermum tuberosum* (tuberous puccoon), *Pedicularis canadensis* (Canadian lousewort), *Podophyllum peltatum* (may-apple), *Phlox divaricata* (phlox), *Elephantopus* spp. (elephant-foot), *Viola* spp. (violets), *Chasmanthium* spp. (spangle-grasses), *Bromus* spp. (brome grasses), *Onosmodium hispidissimum* (false-gromwell), *Sanicula canadensis* (snakeroot), *Zizia aurea* (golden alexanders), *Tipularia discolor* (crane-fly orchid), *Agrimonia* spp. (agrimony), *Galium* spp. (bedstraws), and others. Fire is thought to have played a minor role in the dynamics of this community.

**Current Extent and Status:**

Additional field survey work is needed to more accurately determine the status and extent of calcareous forests. It is estimated that 50,000 to 100,000 acres of this habitat occurred in presettlement times and that 25 to 50 percent remain today (Smith 1993). Confirmed occurrences in the LNHP database are from Bossier, Caldwell, Grant, and Winn Parishes. Calcareous forests certainly occur (or did occur) in the remaining parishes in the distribution map. There are several high quality occurrences on conservation areas such as KNF (particularly the Winn Ranger District), Barksdale Air Force Base, Bodcau WMA, and TNC’s Copenhagen Hills Preserve.



CALCAREOUS FOREST SPECIES OF CONSERVATION CONCERN (7)	
<b>BIRDS</b>	<b>MAMMALS</b>
American Woodcock	Long-tailed Weasel
Yellow-billed Cuckoo	Eastern Spotted Skunk
Wood Thrush	
Orchard Oriole	<b>REPTILES</b>
	Southeastern Scarlet Snake

**Priority Species Research and Survey Needs:**

Birds: Work with state Breeding Bird Survey (BBS) coordinator to ensure that survey routes are conducted in this habitat where feasible.

**Species Conservation Strategies:**

1. Wood Thrush: Develop a monitoring program (i.e., Monitoring Avian Productivity and Survival (MAPS)) to assess relative abundance in this habitat.

**Threats Affecting Habitat:**

The following table illustrates the threats identified for this habitat type and the sources of these threats. This represents all threats and sources of threats identified across all ecoregions of the state where this habitat occurs.

Source of Threat	Threat		
	Altered Composition/ Structure	Habitat Destruction or Conversion	Habitat Disturbance
Conversion to agriculture or other forest types		XXX	
Fire suppression	XXX		
Incompatible forestry practices	XXX		XXX
Invasive/alien species	XXX		
Recreational use/vehicles			XXX

**Habitat Conservation Strategies:**

1. Conduct surveys to determine the current extent and condition of this habitat type.
2. Develop management plans/recommendations for this habitat type.
3. Promote fire as essential management tool; promote alternatives where prescribed burning is not an option.
4. Provide educational information on this habitat type and its importance to species of conservation concern to landowners/land managers through technical pamphlets and the LDWF website.
5. Work with the legislature to provide incentives (tax breaks, etc.) to landowners to retain the natural state of areas where this habitat occurs.
6. Support research to understand the basic ecosystem characteristics and processes of this habitat type.

**References:**

HART, B. L., AND G. D. LESTER. 1993. Natural Community and sensitive species assessment on Ft. Polk Military Reservation, Louisiana. Louisiana Department of Wildlife and Fisheries in cooperation with The Nature Conservancy, Submitted to Army Corps of Engineers.

LNHP. 1986-2004. The natural communities of Louisiana. Louisiana Natural Heritage Program, Louisiana Department of Wildlife and Fisheries, Baton Rouge, LA.

- MARTIN, D. L., AND L. M. SMITH. 1991. A survey and description of the natural plant communities of the Kisatchie National Forest, Winn and Kisatchie Districts. Louisiana Natural Heritage Program, Louisiana Department of Wildlife and Fisheries, Baton Rouge, LA.
- MCINNIS, N. C. 1997. Barksdale Air Force Base - threatened and endangered species - natural areas survey. The Nature Conservancy, Louisiana Field Office, Baton Rouge, LA.
- SMITH, L. M., N. M. GILMORE, R. P. MARTIN, AND G. D. LESTER. 1989. Keiffer calcareous prairie/forest complex: A research report and preliminary management plan. Louisiana Natural Heritage Program, Louisiana Department of Wildlife and Fisheries, Baton Rouge, LA.
- .1993. Estimated presettlement and current acres of natural plant communities in Louisiana. Louisiana Natural Heritage Program, Louisiana Department of Wildlife and Fisheries, Baton Rouge, LA.