Birds and Bees, Flowers and Trees

Whole Ecosystem Management

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BOBWHITE QUAIL INITIATIVE
BQI

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Ecosystem

- An ecosystem is a geographic area where plants, animals, and other organisms, as well as weather and landscape, work together to form a bubble of life.
- Ecosystems contain biotic or living, parts, as well as abiotic factors, or nonliving parts. Biotic factors include plants, animals, and other organisms. Abiotic factors include rocks, temperature, and humidity. – National Geographic

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Why are ecosystems important?

Healthy ecosystems:

- **clean our water**
- **purify our air**
- **maintain our soil**
- **regulate the climate**
- **recycle nutrients**
- **provide us with food**

- **Support healthy wildlife communities**

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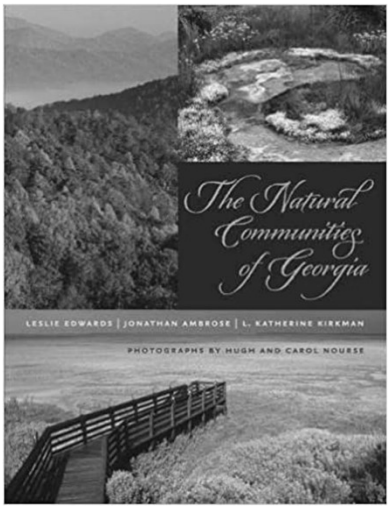
Natural Communities

- An assemblage of native plant and animal species, considered together with the physical environment and associated ecological processes, which usually recurs on the landscape.

- Natural: when native species predominate



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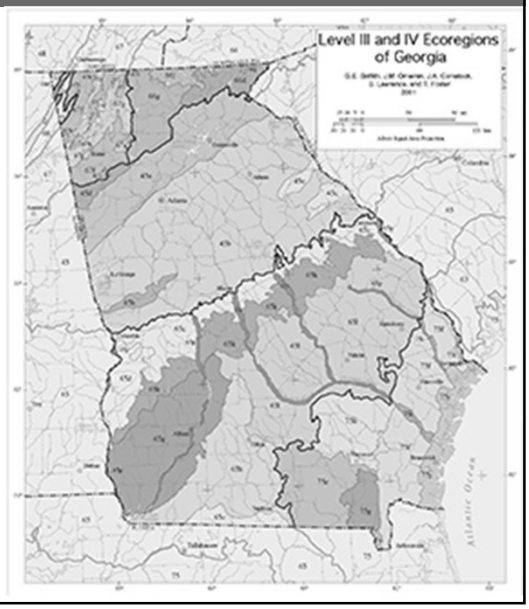
Ecoregions of Georgia

- Cumberland Plateau/Ridge and Valley
- Blue Ridge
- Piedmont
- Maritime
- Coastal Plain – Upper and Lower
  - This vast landscape once promoted the spread of lightning-ignited and anthropogenic fires, fostering exceptionally diverse plant communities adapted to frequent fire.



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Coastal Plain Communities

<u>Upland Forests</u>

- Sandhills and River Dunes
- Dry Upland Longleaf Pine Woodlands
- Mesic Upland Longleaf Pine Woodlands
- Dry Evergreen Oak Woodlands
- Dry Deciduous Hardwood Forests
- Mesic Slope Forests

<u>Rock Outcrops, Prairies and Barrens</u>

- Acidic Glades, Barrens and Rocky Woodlands
- Blackland Prairies and Woodlands

<u>Wetlands and Lowlands</u>

- Pine Flatwoods
- Seepage Slope Herb Bogs
- Seepage Slope Swamps and Shrub Bogs
- Depression Marshes and Cypress Savannas
- Cypress-Gum Ponds
- Depression Oak Forests
- Cypress-Tupelo River Swamps
- Bottomland Hardwoods
- Riverbanks and Levees
- Small Stream Floodplain Forests
- Okefenokee Swamp

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Management Options

Single Species Management

- Maximize habitat for one species
- Can reduce habitat quality for other species (No Free Lunch)
- Can be beneficial for some T&E species

Ecosystem (Community) Management

- Benefits for multiple species
- Provides more community balance (Holistic)

Some single species management can provide ecosystem benefits.

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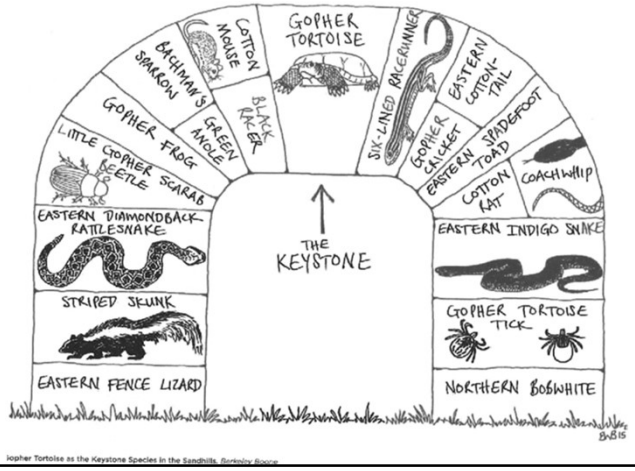
Keystone Species

- a species on which other species in an ecosystem largely depend, such that if it were removed the ecosystem would change drastically.



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Umbrella Species

- species selected for making conservation-related decisions, typically because protecting these species indirectly protects the many other species that make up the ecological community of its habitat.

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The Birds and the Trees

- Longleaf pine savannas
  - characterized by shrubs and tall grasses that dominate the understory, with longleaf pine as the dominant tree species
  - Endangered ecosystem
  - Evolved with frequent fire (1-3 year)
  - Possibly the most diverse ecosystem north of the tropics
- Bobwhite Quail
  - Shrub obligate, early successional species
  - In decline
  - Fire-bird
  - Iconic species

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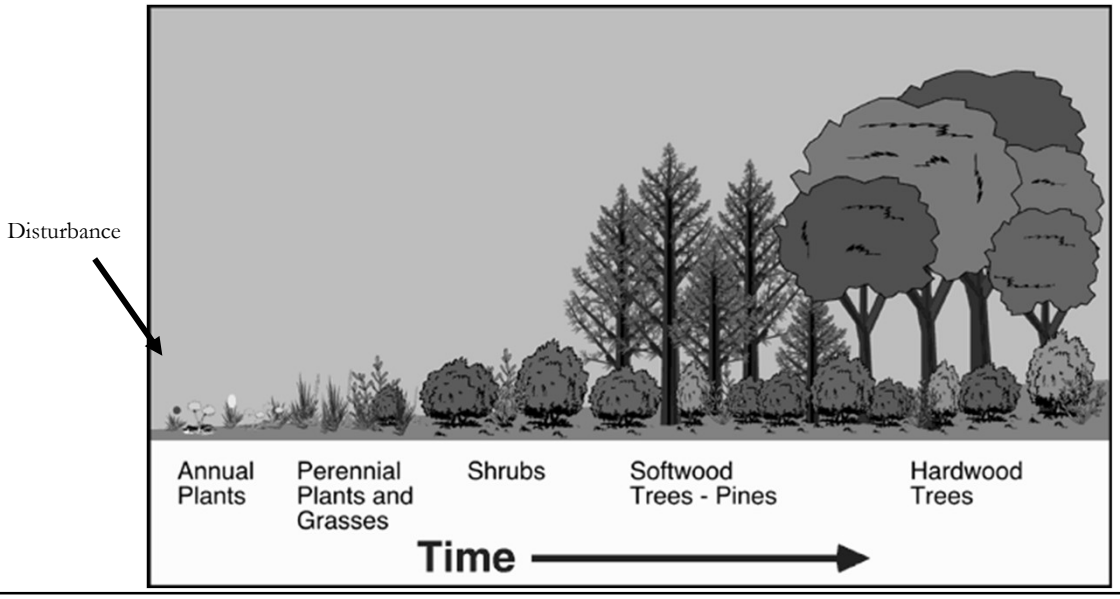
Plant Succession



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Managing Pir

- **Thin**
  - Sunlight is key
  - 40-70 sq ft BA
- **Burn**
  - Patchwork of Small Blo acres)
  - 2-year rotation
  - Dormant and Natural (g Season fires
- Leave some brush cover of Thirds)

Table 1: Number of trees per acre by diameter (DBH) class in inches and basal area (BA) per acre class in square feet. (DBH is measured at 4.5 feet above ground on uphill side of tree and BA is the total cross-sectional areas of all trees on an acre measured at 4.5 feet above the ground on the uphill side of a tree. Values are rounded to the nearest whole tree.)

	Basal Area (square feet per acre)													
D	BA10	BA20	BA30	BA40	BA50	BA60	BA70	BA80	BA90	BA100	BA110	BA120	BA130	BA140
1	1,834	3,669	5,503	7,338	9,172	11,006	12,841	14,675	16,510	18,344	20,178	22,013	23,847	25,682
2	459	917	1,376	1,834	2,293	2,752	3,210	3,669	4,128	4,586	5,045	5,503	5,962	6,420
3	204	408	612	815	1,019	1,223	1,427	1,631	1,834	2,038	2,242	2,446	2,650	2,854
4	115	229	344	458	573	688	803	917	1,032	1,147	1,261	1,376	1,491	1,605
5	73	147	220	294	367	440	514	587	660	734	807	881	954	1,027
6	51	102	153	204	255	306	357	408	459	510	561	612	662	713
7	37	75	112	150	187	225	262	300	337	374	412	449	487	524
8	29	57	86	115	143	172	201	229	258	287	315	344	373	401
9	23	45	68	91	113	136	159	181	204	227	249	272	294	317
10	18	37	55	73	92	110	128	147	165	183	202	220	239	257
11	15	30	46	61	76	91	106	121	136	152	167	182	197	212
12	13	26	38	51	64	76	89	102	115	127	140	153	166	178
13	11	22	33	43	54	65	76	87	98	109	119	130	141	152
14	9	19	28	37	47	56	66	75	84	94	103	112	122	131
15	8	16	25	33	41	49	57	65	73	82	90	98	106	114
16	7	14	22	29	36	43	50	57	65	72	79	86	93	100
17	6	13	19	25	32	38	44	51	57	64	70	76	83	89
18	6	11	17	23	28	34	40	45	51	57	62	68	74	79
19	5	10	15	20	25	31	36	41	46	51	56	61	66	71
20	5	9	14	18	23	28	32	37	41	46	51	55	50	64

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Thinning

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Burn Intervals

3 year **2 year** **1 year**

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The Bees and Flowers

- Pollinator plants attract insects for quail and other wildlife to eat.
- Many of those plants produce seeds that provide food for wildlife.
- Nesting and bedding cover for many species.
- Many rare, threatened and endangered plant and insect species are found in the pine savanna community.
- Grasses are also important!

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Managing the Understory

- Thin and Burn
- Control Hardwood encroachment
  - Not all hardwoods are bad.
  - Mowing/Mulching
  - Herbicide
- Remove Invasives!
- Be patient.
- Plant natives, if necessary.

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Diversity!

A few of the plants and animals that can benefit from quail management:

- Gopher tortoise
- Pocket gopher
- Indigo snake
- Fox squirrel
- Eastern cotton-tail
- Red-cockaded woodpecker
- Bachman's sparrow
- Indigo bunting
- Field sparrow
- 400 species of butterfly and moth
  - buckeye
  - zebra swallowtail
  - monarch
  - yucca moth
- Wiregrass
- Sandhills bluestar
- Slimleaf Pawpaw
- Indiangrass
- Butterfly pea

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Diverse Landscapes Not Monoculture

- Single species or low species diversity limits productivity
- Venerable to pests, disease, drought
- Habitat Fragmentation
- R,T&E species

- Leave an occasional hardwood
- Leave snags
- Add openings
- Manage bottomlands and drains
- Provide habitat on agricultural lands

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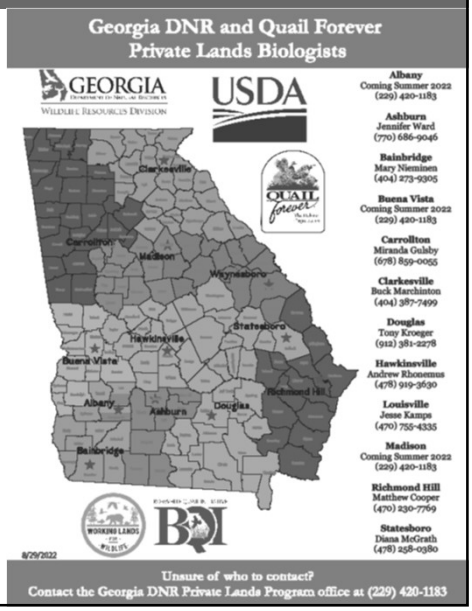
Managing Your Property

- Site specific- Get a plan tailored for you
- Set goals and priorities
  - Wildlife
  - Timber
  - Both
- Be realistic
- Ask for help
- Field of Dreams



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Questions?

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