THE STORY OF NATIVE SOUTHEASTERN GRASSLANDS TOLD BY THE NUMBERS

Amazing statistics about temperate native grasslands in the Southeastern U.S. and North America

(please contact SGI for references)

In the North American Coastal Plain biodiversity hotspot:
(a subset of the SGI focal area):

- Vascular plants = 6200 species, 29.3% endemics
- Freshwater fishes = 424 species, 32.5% endemics
- Amphibians = 105 species, 42.9% endemics
- Reptiles = 177 species, 28.2% endemics
- Breeding birds = 274 species 2.2% endemics
- Mammals = 148 species, 6.1% endemics

This is full species only, the numbers and rate of endemism rise when subspecies and varieties (infraspecific taxa) are included.

Southeastern native grasslands are a cradle of biodiversity for North America and the world.

- Southeastern native grasslands contain more than half of the terrestrial biodiversity of the South.
- Since 1960, 394 plant species have been discovered and named in the Southeast, 256 (65%) of which were found in grasslands (where most of the diversity is concentrated in the herbaceous understory).
- As of 2019, researchers know of >100 undescribed plant species (i.e. plants new to science), and more than 3/4 of these occur in grasslands.
- Our native grasslands have the highest plant richness in North America (> 50 species per square meter).
- Native Southeastern grasslands support outstanding pollinator richness (for example, almost 100 bee species were found in a single powerline prairie remnant in Starkville, Mississippi).

- Preliminary analyses of the Southeastern flora suggest that 60% of the native flora are “grasslandy” species meaning they prefer naturally open habitats to forests.

The flora and fauna of our native southeastern grasslands are highly threatened and, in many cases, declining.

- Most threatened or endangered plants in the South are also grassland species, for example, about 60% of Tennessee’s 440 rare plant species require naturally open/grassland habitats.
- Within Southeastern interior grasslands (which excludes coastal pine savannas), 87% of threatened and endangered plants protected by the Endangered Species Act require or prefer grasslands and related habitats.
- Nearly 50% of rare mammals, birds, and reptiles in SGI’s focal region require or prefer grasslands
- Many iconic species have been lost from Southern grasslands, including Bison and Greater Prairie Chicken. Many more are declining precipitously, including Northern Bobwhite, Eastern Meadowlark, and Monarch Butterfly. In fact, the current U.S. bobwhite and meadowlark populations have both declined by 75% or more over the past 40 years, and are anticipated to halve their populations within the next 10 to 25 years.

Temperate grasslands of the world

- Temperate grasslands are the most threatened biome in the world. They are also the most altered and yet the least protected biome on the planet. Only 3.4% of the world's temperate grasslands are protected.
- Temperate grasslands of the world generally have relatively deep soils that are rich in nutrients due to large amounts of organic matter in the soil.
- The amount of life found below the surface of grasslands dramatically exceeds that found aboveground, in both number and mass, as well as species richness, and is particularly rich even when compared to other belowground environments.

- It has been estimated that there are approximately 100 tonnes per hectare of living biomass below the surface of temperate grasslands, consisting of bacteria, fungi, earthworms, microarthropods and insect larvae.

There are economic reasons to value native grasslands. In addition, less tangible, though no less important, reasons lead us to cherish what remains of our native grassland heritage while seeking to restore it as much as possible.

- Native grasses improve **soil health**. With natives it is easier to increase soil organic matter and microbe populations, which reduces the need for fertilizers, guards against erosion, and increases soil water-holding capacity, which in turn reduces runoff and contributes to improved **water quality.**
- It's possible for as many as seven inches of rain from one storm to be absorbed by grassland vegetation and soils—helping to keep soil on the land and to **control flooding**.
- The biodiversity of native grasslands extends into its soils as well, many of which **rank among the most diverse communities of microorganisms of any terrestrial ecosystem on earth**. Cutting-edge companies are actively studying the ways in which the microbiome of both soil and plants influence plant survival under stressful conditions with the goal of creating agricultural systems that rely more on natural processes and less on chemical inputs.
- Native grasslands are literally "**groceries on the ground**": plant and insect diversity provides a base for the trophic system (food chain), supporting grassland insects, birds, reptiles, and mammals, including culturally important wildlife species such as Bobwhite and Monarch butterflies.
- Native grasslands serve as important **carbon sinks**. An acre of intact prairie can absorb one ton of carbon per year in its roots and soil, and under certain conditions, substantially more. North American prairies contain over 35% of the soil carbon in the continental United States.
- Native southeastern grasslands are **adapted to drought**. Native pastures remain green and palatable in dry summers compared to nonnatives. Cattle producers have found that their livestock gain weight faster and

are healthier when they eat native grass forage. Moreover, native grasses are free of a plant toxin associated with introduced fescue grasses that can hurt the health of grazing animals.

- Native grasslands are important to native bees, both for nesting sites and as a source of food during the noncrop season. **Native bee pollination** results in ~$3 billion worth of crop production annually in the U.S. Managing for native bee habitat is a good risk management strategy for farmers of the more
  than 100 North American crops that require pollination (1 out of very 3 bites of our food). Even meat and dairy industries depend on bee pollination to produce forage seed (alfalfa and clover). In many cases, native pollinators are, on a bee-for-bee basis, more efficient than honey bees.
- Native grasslands and their associated wildlife are **beautiful.** The assessed value of a ranch or farm based on aesthetics
  and wildlife habitat or its recreational opportunities can often exceed the property's agricultural value. The beauty of such areas contributes immeasurably to **quality of life** as well, something which is highly prized by a large majority of private landowners.