



| Claude Jenkins, AWF Land Stewardship Biologist

Ryan Mitchell, AWF Land Stewardship Biologist |



## RESOURCE STEWARDSHIP

# SAWTOOTH OAK— A Fallacy of Epic Proportions

For decades, exotic plants have been introduced for wildlife management, soil conservation, landscaping, forage production for livestock, etc., and, one doesn't have to travel far to see the unintended consequences of such introductions. The perceived value versus the perceived negative effects associated with exotic plants has been argued as a matter of philosophy among game biologists, foresters, soil conservationists, and landscapers. However, there is a plethora of evidence to indicate that the introduction of exotic species has resulted in significant ecological damage and causes serious management challenges.

Multiflora rose is an example of an exotic species that was introduced because of its perceived value for erosion control, and food and cover for wildlife without adequate thought to its potential problems. Since its introduction, it has aggressively spread throughout pastures – costing individual producers hundreds of dollars in eradication cost – and it has become the predominate plant in many abandoned pastures. Autumn olive was touted as the universal remedy for what ails you: if a visual barrier was needed, autumn olive was the remedy. If landowners and homeowners wanted more songbirds, autumn olive was the remedy. And, what better plant than autumn olive for the landowner interested in deer, turkey, and quail? Game

biologists and foresters regularly recommended autumn olive to such landowners because it provided “food and cover” for all three species. Well, deer quality didn't improve, and turkey and quail numbers didn't increase because of autumn olive; instead, we were left with another exotic species invading our native habitats! Bicolor lespedeza was the plant that was going to save quail from further decline. While quail are still declining, bicolor lespedeza can be found everywhere.

Variations of the scenarios above have been used to promote sawtooth oak, another exotic species that is widely promoted as an alternative to native oaks for providing food for wildlife. Sawtooth is native to Asia but was introduced to the United States in the

This landowner is practicing responsible stewardship by removing the sawtooth oaks from her property.



late 1800's to early 1900's. It is widely used as an ornamental and vigorously promoted for deer because it produces acorns several years earlier than native oaks. In 1986 the "Gobbler" sawtooth variety was released to produce smaller acorns that are easier for turkeys to ingest. It is, inarguably, short-sighted to promote an exotic species just because it produces acorns years earlier than native oaks. Hopkins and Huntley (1979:257) cautioned that "Where native mast producers can be managed, they should not be replaced with sawtooth." This assertion calls attention to the flaws in management practices that permit replacement of native species with exotics, and suggests that natural resource managers should consider the underlying problems of land use that eliminated native oaks and not establish sawtooth oaks in their place.

In many cases, acorns are not a limiting factor for wildlife, yet landowners plant sawtooth oaks because they've heard that deer "like them" or that they're "good for deer." No doubt deer like sawtooth oak acorns. But, do deer not like native acorns? Of course they do! Although deer like sawtooth acorns, what about the perceived benefits? Sullivan and Young (1961) evaluated sawtooth acorns as a source of wildlife food by comparing a chemical analysis of sawtooth acorns with that of eight native species. The analysis indicated that sawtooth acorns were consistently much lower in protein, fat, and nitrogen-free extract (soluble carbohydrates) – components of acorns that are important to deer, squirrels, and other wildlife – than the eight native species (See Table). Furthermore, native oaks produce acorns throughout fall and winter when they are beneficial to native wildlife, not all at one time in September and October like sawtooth oaks.

Sawtooth Oaks have characteristics that make it a potential threat to native ecosystems: It is well-adapted to the climate in the Southeast; trees produce acorns at an early age; acorn production is moderate to heavy every year; and, acorns appear to be resistant to insects and disease. Admittedly, when facing the problems caused by other exotics throughout Alabama and elsewhere, the potential threat of sawtooth oaks seem trivial. Then again, the potential

threat of Chinese privet must also have seemed trivial. Chinese privet was introduced into the United States from China in the mid 1850's to be used as an ornamental shrub. After decades of staying where it was planted, it escaped cultivation and is now wreaking havoc on our native ecosystems. It would be wise to remember that exotics do not always begin spreading immediately after establishment. Exotic species are like time bombs, but no one knows the time when they will explode! Coblentz (1981), in his paper *Possible Dangers of Introducing Sawtooth Oak*, pointed out the lack of foresight and, perhaps more importantly, the lack of hindsight in promoting sawtooth oaks over the dozens of native oaks in the southeastern United States for mast production for wildlife.

The folly associated with the intentional introductions of exotic species is well documented. Yet, new exotic species continue to be tested for the same nonsensical reason as sawtooth oaks: wildlife habitat plantings. It is the responsibility of natural resource professionals to provide sound wildlife habitat management advice to landowners and managers. To continue to ignore the well-documented, negative consequences associated with introducing exotic species in the name of wildlife management would fall short of this responsibility. In his book, *The Alien Animals*, Laycock (1966) describes the pursuit of exotic species as a "perpetual relay race with one generation passing the stick to the next." Yes, the pursuit of some exotic species will indeed be perpetual. However, natural resource professionals and landowners have an opportunity to stop further intentional introductions of exotic species into our native habitats and pass the stick of responsible stewardship instead.

## CHEMICAL ANALYSIS OF SAWTOOTH OAKS COMPARED WITH NATIVE SPECIES

Species	Protein	Fat	N-Free	Crude	Ash	Moisture
Sawtooth oak <sup>1</sup>	2.69	1.68	47.96	4.02	1.42	42.23
Sawtooth oak <sup>2</sup>	3.63	1.94	47.3	7.11	1.74	38.38
Sawtooth oak <sup>3</sup>	3	1.4	48.2	6.5	1.4	45.4
White oak <sup>4</sup>	6.3	5.6	69.72	15.54	2.72	
Post oak	5.94	6.33	70.01	14.92	2.54	
Live oak	6.26	6.61	70.2	14.06	2.92	
Southern red oak	5.41	14.85	59.03	18	2.69	
Bluejack oak	6.81	20.46	55.2	15.24	2.18	
Blackjack oak	6.56	15.5	55.31	20.25	2.38	
Water oak	4.46	23.18	55.33	15.45	1.57	
Willow oak	4.74	20.51	55.08	17.75	3.88	

<sup>1</sup> Ackerman, MS sample, 1960. Analysis made by Dr. E. M. Etheridge, State Chemist, MSU.

<sup>2</sup> Athens, GA sample, 1960.

<sup>3</sup> Athens, GA sample, 1961. Analysis made by Georgia Department of Agriculture, Laboratories Division, Atlanta, GA.

<sup>4</sup> Averaged several studies in Goodrum, Phil D. Acorns in the Diet of Wildlife, Proc. 13th SE Wildlife Conference, 1959.

### Literature Cited

- Coblentz, B.E. 1981. Possible dangers of introducing sawtooth oak. *Wildlife Society Bulletin*. 9(2): 136-38.
- Hopkins, C.R., and J.C. Huntley. 1979. Establishment of sawtooth oak as a mast source for wildlife. *Wildlife Society Bulletin*. 7(4): 253-58.
- Laycock, G. 1966. *The alien animals*. Natural History Press, Garden City, NY.
- Sullivan, E. G. and W. C. Young. 1961. An exotic oak, *Quercus acutissima* for wildlife food planting. *Proc. Annu. Conf. Southeast. Assoc. Game and Fish Comm.* 15:136-141.