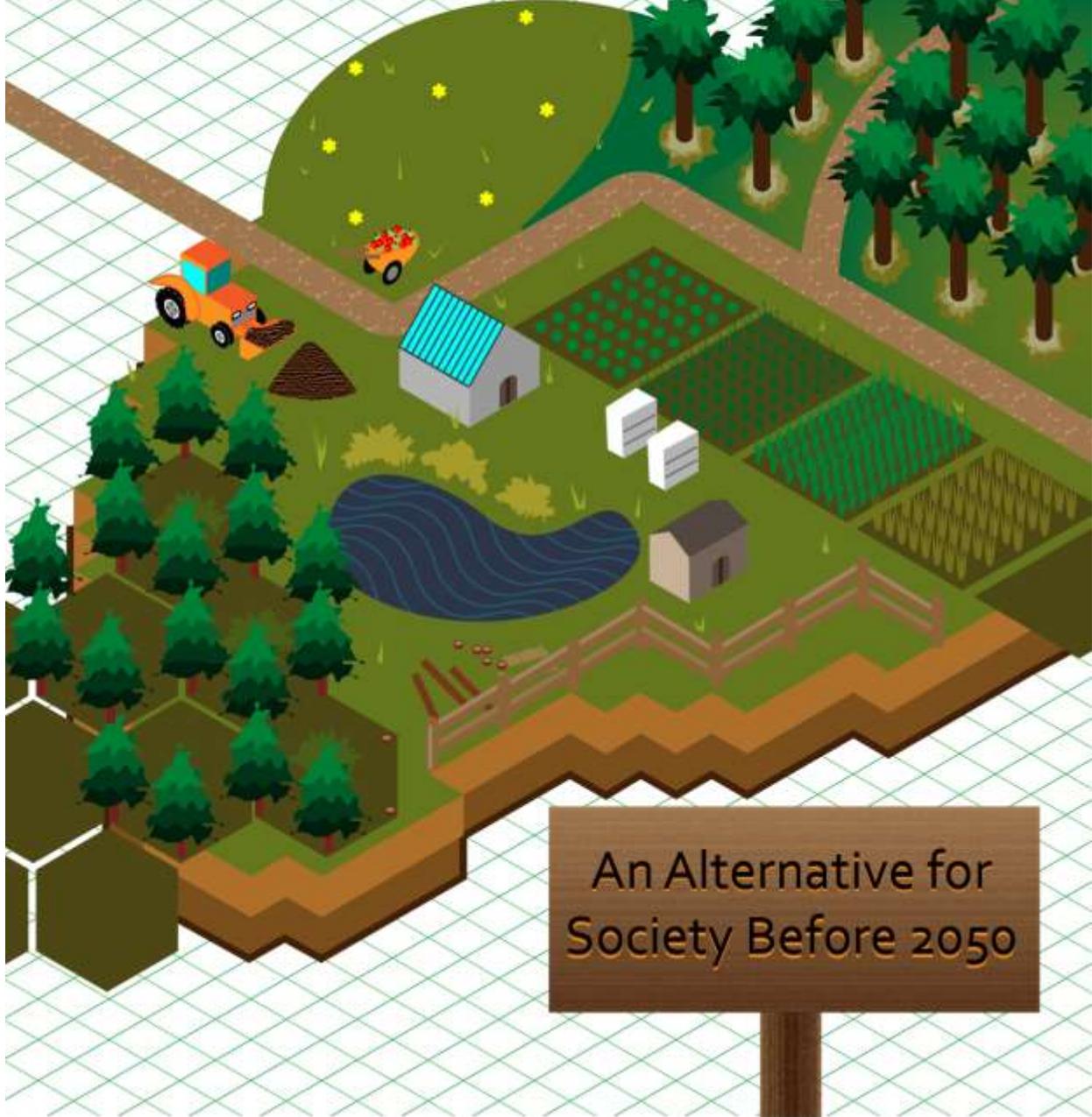


# RURAL FUTURE



An Alternative for  
Society Before 2050

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An Alternative for Society Before 2050 AD

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June 2017

## The Reach Group

*As other Groups of Rural System, **The Reach Group** is a set of ideas expressive of current thought about needs and potentials, first within Virginia, and expanding to other rural regions of Earth.*

We might see The Reach Group with *membership of all* within rural life, those who live and work there, including professionals, government officials, educators, farm workers, clergy, and residents who “share our concerns” and find our objectives meaningful. The Reach Group is planned to be within Rural System and will seek to strengthen the rural economy. “Rural” is a diverse economy dependent upon a range of industries, including manufacturing, services, government, and wholesale and retail trade.

Agriculture, which has traditionally been a key base of the rural economy, continues to record strong productivity gains. (Agriculture is highly competitive in international markets.) Rural America offers many opportunities, but also faces a number of infernal challenges, such as educational attainment that lags behind that of urban areas. Improvements in health status also have not kept pace, and access to doctors and health services has not met the challenges of rural people.

Work is needed to strengthen and diversify the rural economy, and to support rural workers and businesses. Many of these policies are already being implemented through the American Recovery and Reinvestment Act of 2009. Strengthening rural America is focused on growing businesses, expanding employment opportunities, and increasing support for small business lending. Rural System seeks to implement incentives to greatly expand biofuel production and renewable energy generation, sources which are often centered in rural areas. Wind generation may be proposed, as well as rural tourism and recreation for the local economy.

Improvements in rural infrastructure, roads, bridges, water projects, and telecommunications are needed to become fully integrated with the rest of the economy. Support and creative options are needed for rural infrastructure projects. Also needed are expansions of broadband internet access to rural areas and action for upgrading and improving the efficiency of rural water infrastructure.

We need to further open international markets to U.S. agricultural products, to propose reforms to better target farm support programs, and to urge a greater focus on local and regional food systems—Know Your Farmer, Know Your Food. Also, focus needs to be put on strengthening the labor force, and improving the quality of life in rural America by investing in education and health care, including rural broadband. Such investment will help make high-quality online courses available to rural areas.

We need investments in the health of rural America to increase the affordability and quality of health care, while bolstering the medical workforce and infrastructure to address the unique challenges that rural residents face. Such actions may include work on prenatal health, family health programs, accident reduction, local body sculpting with rewards, child care, first-aid and safety programs, fire prevention, family planning, automated health program access, access to health and wellness instruction and advice, and many other important measures. Rural System may provide special support for the rural medical workforce by expanding graduate medical education positions in rural teaching hospitals, and by supporting training for doctors and nurses in rural health care.

# Chapter Ten

## Tourism Groups in Rural System

Many of the diverse Groups planned to operate within Rural System are related to recreation or tourism on ownerships, generating profits and providing opportunities for people to enjoy the well-managed resources of lands and waters under Rural System management. In Chapter 9, we introduced the concept of ranging and covered topics related to hunting activities on ownerships under contract.

Ranging is not limited to hunting, however, and many ranging activities fall under the term “ecotourism,” as explored widely by modern natural resource managers. Rural System ranging enterprises include diverse Groups, such as the Owls Group, and a new bird-watching sport invented by Giles, called “BirdGolf.” We shall introduce several ranging-related Groups herein, as an example of the substantial opportunities for generating profits from rural regions while providing many benefits for humans.

### The VA Touring Group

The increasing, urban human population, we suggest, has major needs—personal and for families—for learning about the rich natural resources of the Commonwealth’s parks, forests, and state wildlife areas. (I think we can arrange this.) The new, proposed **VA Touring Group (VATG)** in Rural System will study the *existing* natural resource areas of the Commonwealth (called herein “parks”), develop relations with transportation and nearby lodging and food enterprises, and work to build a specialized, tourist-based industry in Virginia (later expanding elsewhere).

The VATG will map the rustic, walkable and drivable state park and ownership areas, and develop instructive and appreciation-enhancement aids, photos, and cost-effective, commercial bus-load, staff-guided tours of the resources of State-owned lands. Access and contracts will be developed for guests to enjoy nearby motels or related quarters.

VATG is planned to be an element of Rural System, with many similar objectives to “ecotourism,” but adding education, and focusing on lands and waters “left behind” by emigrants to urban Virginia. VATG objectives are for superior jobs for local people, sale opportunities from growing regional markets, and knowledge of their historic areas. Well-aware of state investment in these park and forest areas, and separating people from them by high travel costs and limited access, the VATG will offer citizens and guests superior, often unique access to the history and natural resources potential of Virginia park lands.

Park visits and introductions will inform visitors of each nearby BirdGolf area, created by Rural System, as well as other Rural System bird opportunities, such as Owls Group tours—discussed later in this chapter. The bird-watching opportunities available on each park will be highlighted. Rural System will employ superior teachers, with high interest/enthusiasm for the area resources and local businesses. Special educators will be employed and will introduce

guests to special areas and resources. We plan to move to client-sensitive, non-TV sights and experiences, and to those available on tax-based state lands and waters.

Most visits will be on trails and prepared areas, as permitted. Officials may be invited, but no attendance will be requested or desired that may separate any of them from their work. VATG tours, by design, will not incur additional work of state or federal agents or staff. We shall be willing to submit a report on each visit, numbers and activities, and major sightings. (We shall also welcome access to state and federal reports and data as we prepare text and information for guests.)

Past ecotourism was interested in financing for local people and owners, as well as conservation. We plan, herein, for wages for Guides and staff participants, and for knowledge gained and stored on flora, fauna, and water resources. VATG, as planned, seeks to use public investments of the past to inform current urban dwellers about elements of that past ... and so improve future decision-making and modern natural resource management guidance.

We plan to include safety instructions, including information about desired behavior on sites, and shall ask all to wear a supplied tracking-bracelet to avoid human losses. Transportation of guests will be by licensed, approved busses and other related vehicles, parked temporarily, where allowed, on or near public areas. Public toilets will be supplied, and meals will be arranged with local restaurants or approved suppliers. Adequate VATG staff will be needed to prevent lost people, allow full attention to the local sites, and deter personal accidents or property damage. Picture taking will be encouraged, as well as tweets, blog posts, and other reports of site visits and experiences.

International travel events will eventually be arranged and offered to guests for adventures to see wild fauna species, especially birds to add to their life lists.

## Nature Folks

**Nature Folks** is a planned Group (for expansion statewide) that encourages guests of Rural System to take new opportunities to learn about nature and rural lands, especially the wildlands. Its objectives are to encourage study of nature and natural resources, to provide pleasant opportunities to learn, to contribute to knowledge about the ownerships and region, and to help achieve the objectives of Rural System. Nature study is usually a very private, personal activity, but occasionally it needs help, encouragement, or support. The Group will exist to help and encourage people who love nature and who study it. It will provide an organization, supplies, equipment, materials, a common site for visits, opportunities, and services to its members, clients, and friends.

As diverse as the interests of its likely members, some members may prefer solitary work and enjoy the newsletter and website; others may prefer more group-oriented work and topic-related social activities. The organization will be for anyone interested in nature; there will be no gender, age, race, nationality, or place-of-residence limits. The initial emphasis will be on a named region's rural wildlands and waters, and on their active, diverse, creative, and non-destructive uses.

Broad interest groups may be formed. Membership may often be held within several groups. Studies may result in individuals or groups gaining world-class “nature knowledge,” a resource that may be lost, shared, or passed on to future generations. Direct knowledge of Earth-organisms is needed and enjoyed—what they are, where they live, what they eat, how they are challenged, how they reproduce, behave, and die—all now seen as nearly vital to science and

society. Nature Folks will be neither an environmental nor an ecological activism or fund-raising Group. It will take no “stand”; it will not be a political Group. (There will likely be other individuals and organizations that may meet such needs.) In a related way, however, knowledge of a region can serve well in encouraging sound regional development, high quality of life, and diverse recreational and educational opportunities within the outdoors.

“*What’s out there!?*” is the organization’s question, and its answer.

Members will recognize the advantages of contacts made through and within Nature Folks with people of similar interests in proposed development and future projects within the region. The Group will affiliate with local museums, the North American Association for Environmental Education, and other enterprises and local groups with interest in, and programs/projects related to, nature.

Nature Folks will be created for people who do not already have major groups with which they can affiliate (such as the bird watching, fishing, or hunting groups). It is especially designed for people who may not have *special interests*, but who are generally interested in local nature, the outdoors, and the working of natural things. Nature Folks will be for individuals, but corporate or organizational involvement in special projects is welcomed and encouraged as well. It will engage in finding and listing flora, fauna, and other characteristics of Rural System leased lands—it will take pleasure in making, reporting, and storing information on discoveries of the local, rural natural world for the public good, general interest, and future needs.

### Wise: The Owls Group?

**The Owls Group** is a new, planned enterprise, devoted to gaining optimum, long-term human benefits from the owl and raptor resources of the world. It will also seek to make profit (and related human employment) from such activity. Its initial emphasis will be on the owls of Central Appalachia.

The Owls Group holds that these birds are not being managed adequately or successfully. Certainly, their potential as an international modern resource has not been achieved. The Owls Group will seek to begin to meet perceived needs and to begin to improve resource use.

Designed as a system, the objectives of the Owls Group development are:

1. To maximize profits from an owl-based raptor resource management system;
2. To maximize research findings (conclusions) over a long period;
3. To minimize the time from research “discovery” to application;
4. To improve the status (abundance, distribution, community presence, and socioeconomic appreciation) of raptors and the raptor resource in the U.S.;
5. To increase knowledge of raptor management and predator foods and feeding;
6. To develop a comprehensive computer model representing owl abundance and dynamics within a major forest ecosystem over 150 years; and
7. To advance predator-prey theory—especially its application.

The Owls Group, like over 150 other Groups of Rural System, is a proposed, for-profit enterprise relating to all aspects of people's great interests in owls. The organization will sponsor “owl trips” as a primary activity, but it has a diverse set of other tactics, all aimed at improved, comprehensive, computer-aided faunal resource management. The Owls Group will be part of a strategy to increase jobs in the region and benefit from recreational visits.

There are 37 species and subspecies of owls in the Western U.S., and 12 (some the same) in the Eastern U.S. The spotted owl has been at the center of Western U.S. land-use controversies

for over a decade. Great interest in owls exists around the world; some are threatened, others are abundant and are important in ecosystems. Several occur in cities.

The potential activities, services, and products of The Owls Group are many, and include:

- Travel agent services for local field trips and tours;
- Field trips (catered, hotel, educational and recreational one-night “events”);
- Photo sales and opportunities;
- Newsletters and publications on owls and their ecology, and on Owl Group activities;
- Sale/rental of night-observation and “calling” equipment;
- Art sales (painting, sculpture, and professional photographs);
- Product sales, such as screech owl nesting boxes and carvings; and
- Wilderness/remote area camping expeditions with observing owls as a major goal.

An evening owl trip or event will include a meal for 30 clients gathered at a contracted restaurant and/or motel. After introductions and a dinner, the group will hear a brief talk and see visuals of owls. Everyone will board a bus. During the 20-minute bus drive, a staff member of The Owls Group will describe the organization and its objectives, and give a wonderfully-crafted lecture on local owl species.

At the first stop, all will leave the bus, walk over a built trail to a quiet spot and an electronic device will be played, and barred owls will usually respond. Questions will be answered, and Guides would give further information about the owl. At another stop (the forests would be very dark) the group will huddle in the quiet, and other owls will be “called up.” (This is said by some to be the thrill of a lifetime. *There is still magic in campfires.*)

The group will move to a campfire site, enjoy the fire, stories, refreshments, and live country music. Some might play new games with GlowOwl balls. Then, all will board the comfortable bus for the trip back to the motel or restaurant. Information on owl studies will be provided by Guides on the return trip. Those wishing to do so can later observe owl habitat and management activities during the day, perhaps soon after the evening tour.

The staff of the Owls Group will seek limited research grants to achieve some of the objectives, and to support and allow achievement of the others. The funds gained are expected to pay some salaries and wages for those conducting the research. Studies will be conducted in response to requests for proposals, when available, but the key pathways are those discovered by comprehensive models and sensitivity analyses.

A planned **Rural System Foundation** will accept money, gifts, lands, services, and equipment—all directed toward diverse Rural System goals, including those of The Owls Group. Named fellowships and properties (e.g., the A.B.C. Memorial Raptor Management Area) will be sought and utilized to meet the objectives of the program.

Though difficult and requiring innovation, activities described for The Owls Group do not seem impossible within the context of the entire, interdependent Rural System, with multiple funding sources and programmed assistance, computer aids, and benefits from past research. The Owls Group’s success, as planned, will enhance the planned work of other Groups ... and contribute to the land owners’ income—those participating in the Rural System and its continual feedback, system-wide.

## BirdGolf

*BirdGolf is a proposed enterprise of Rural System, with plans for international franchises. It is a major activity with many new dimensions to popular bird watching, operating on land parcels designated as Rural System BirdGolf Courses.*

I was brought up as a youth in scouting to love bird watching. My scout leader, Dr. Sam Guss, a veterinarian to whom I owe more than can ever be stated or repaid, was an amateur ornithologist (more than just a “bird watcher”), and loved to share his knowledge and zeal for a good daily bird count. (The maximum number of birds in an area or the count approaching that maximum is called “richness.”) I raised homing pigeons, bantams, and in one year, ring-necked pheasants for release, so I was familiar with and enjoyed birds. He gave me a model and kept a “life list,” which is a check sheet of each species he had seen during his life. He was always on the hunt for adding a new bird to his list, or to see and reconfirm a locally-rare species already checked on the list. I worked on a life list too, and enjoyed studying books and listening to records so that I could recognize species and perhaps make a “find” that would add to my list. Christmas Bird Counts, taken with local bird watchers, were always a pleasant seasonal event, and I usually added a bird or two to my life list on such days.

I bumped up the count of birds on my list (it seemed unfair to me) when I went from Virginia to work for the US Forest Service on a trail-building and fire-fighting crew in Oregon in the summer of 1952. I kept the field-guide book busy all summer, adding new species-sightings to my list. Years later, I suffered slightly among game management professionals, for I considered myself among them in my interests in grouse, turkey, quail, waterfowl, and crop-damaging birds, but also an outsider, for I was one of the so-called “dickey-bird watchers.”

I took a course in ornithology—a cold, austere thing without a specimen or a field trip—in my Ph.D. program. My interest declined further as time slipped by and my hearing ability in the higher range of birdcalls declined. Yet, I continued reading about and studying birds, for they held a special place in my life. People around me increased their interest, but few seemed to know little more about their management than “feeders and bird houses.” Funds here and there were released for a few studies of forest birds. I was paid to write the first “non-game bird” plan for the state wildlife agency. (“Non-game” has always been a non-word for me. Game birds were always “non-game” when the hunting season closed.) Peculiar claims were advanced about what birds needed, and what effects forest harvests had on them. The value of birds seemed to be in question, as if we could justify action on the forest... or not... with such numbers. We seriously discussed the possibilities of explicitly valuing pet-like creatures, as if the numbers would ever be used satisfactorily in public discussions.

I worked for several years on a paper on the “worth of a duck,” after I learned of challenges which arose within the US Wildlife Refuge System. Duck losses to dams, powerlines, and other developments had to be mitigated, or at least factored into statements about impacts. Cost-benefit ratios had to be computed. Loss of birds was a cost, and if they had a monetary value, then they could be added into the cost column. My efforts were discouraging. Only “priceless” seemed to be of the right currency and magnitude for the potential loss of endangered species to be worth enough to slow or (rarely) stop a project.

I liked the economists' concept of “opportunity cost,” which is approximately that something like a bird has to be worth at least as much to a person as the thing that was forgone to have it. If I know that a woodpecker depends on trees of a certain species and size, and I know that the trees will bring \$3,000 if I cut them, but I do not do so in order to have the woodpeckers, then as a rational person, they must be worth at least \$3,000 to me. Yet, there were several flaws

or uncertainties, and too many dimensions to discuss for this valuation to “sing” for me or for others.

Then along came my rediscovery of Shakespeare, my embarrassment at my sophomoric falling under Frost's small phrase, “rediscovery of the trite.” As of yore, the pound of flesh cannot be valued alone. Many things are inseparable, valuable only when together—only when within a context. The presence of things that are meaningless or worthless when alone may give value to other things, when with them. The president's house is an attraction, and so “makes” the area a tourists' area. A building or natural feature is worth the trip to see it for the family or individual, but its value has to be tallied over time, as *all* of the net financial gains in commodities and services not available to a nearby, similar community. A wall that obscures ugly things adds value to observers and land on at least one side ... but all walls have two sides, perhaps one that is valueless.

“They will not place the proposed corridor for the power line through that person's house!” is not a surprising statement. There are things so highly valued that they do not have to be *explicitly* valued; there is common knowledge that the costs of such action will be very high, and are likely to exceed the benefits. There is a value dimension to honor and respect, and so an alternative powerline corridor is selected... without computation.

I sought ways to assign value to wild fauna and other important natural resources, for they seemed to me to be under attack and, when close to the time for decision, it seemed that estimated monetary value was the determining topic. If they could not be convincingly valued, then they lost in each decision about whether to build or not, and *where* to build to avoid loss or impairment. I found over 20 ways to value wild faunal resources, but the key phrase for me was “*convincingly* valued.”

One way that I had not found was the *profitable enterprise* argument. It was akin to the historic site or the congressman's-house value approach. The value of wildlife (i.e., wild fauna, or similar natural resource) depended on its value to an enterprise. The value of a wild fauna enterprise is expressible in terms of important things directly tied to and interdependent with it: employment, payrolls, a tax base, schools, and community services.

I began to imagine a wildlife activity so well-used, so much liked, producing so much employment and tax revenue, and providing so many environmental services that no one would consider destroying or impairing the wild faunal communities associated with that activity. Or, at least, without attempted computation of all of those values. I called it Avi, later AviGolf, and now “BirdGolf.” It began emerging with Richard C. Rivera in Guatemala at Buen Aventura private nature reserve, where there were 186 species of birds available to be seen by guests.

In 1985, I began working with students on an imaginary project that might one day have a practical application (rather than some pointless make-work assignments). The learning objectives were scattered among analyses, design, presentation, writing, ornithology, and computer programming.

Waiting for a movie to open one evening, and telling a respected neighbor about the BirdGolf concept, he volunteered that a course in “the rough” of a standard existing course, developed as I had suggested, might really please his wife, who typically lounged in the golf-course club house and did not like any part of his conventional golf.

I had imagined separate, intensively-developed areas, rich in bird species, perhaps on select private lands, existing state wildlife lands, or various “refuges” —any land enhanced for bird species by a Rural System Group. My students were helpful. The challenges were simultaneous; no 1, 2, 3 sequence for solving them seemed possible. For success, we had to

imagine an increasing market, sources of income over time, diversification potentials, and mastering the ecology of the birds of a region so well, so precisely, that all of the conditions for maximum species richness could be brought into or cultivated rapidly, cost-effectively, in a relatively-small, useable area for some long period.

We worked on an imaginary, *new*, for-profit sport of bird watching on private, franchised, bird-watching courses. The sport had strong parallels to conventional golf. I thought it could be developed on an existing golf course, especially in the rough areas and surrounding trees and landscape. Early morning use would not detract from golfing on the course itself, and capital investment would be minor. Better, I imagined the course on an area already rich with bird species. Better still, and much more of a challenge with its creative demands, was the possibility of developing a business related to an area around a trail that would allow informed users to see more different local bird species year-around than in any other nearby areas.

The imagined BirdGolf course was a place where people, singly or in small groups, would pay a fee or show a membership card, enter data about themselves and past visits and the conditions of the day, and then follow the trail (aided or not) to see with binoculars or other aids many species of birds.

Of course, I knew of and had visited many areas on public lands where bird species are abundant. I enjoyed bird walks on private lands. The differences for BirdGolf were:

- Use of *our* “course” of intensively developed habitats would require fees;
- Users would see significantly more species on a course than within many miles;
- The course would be available year-around, and thus would require some vegetative manipulation (planting, pruning, protection);
- Seasonal differences (migratory and residential bird differences) would allow for different marketing;
- A 150-year planning horizon could be put in place as part of Rural System action; and
- Significant social and competitive dimensions may be added.

Semi-natural, the proposed BirdGolf courses would allow feeders, watering devices, nesting structures, and viewing structures. BirdGolf rules, most paralleling conventional but often intricate golf, would be in effect. There would be personal and group security within courses, group and membership appeals, and rewards, including a variety of competition options; additional services and benefits such as guides and assistants, memberships, codes of behavior, and communications between members would also be available.

Students were puzzled, and commonly voiced that for such areas there would be competition from public areas. There was the general feeling that birds can be seen anywhere. “Must everything be for money?” they asked.

I think that there is a major segment of society that has limited time, seeks special interests, enjoys being outdoors, and welcomes the peace, security, quiet, and beauty of the typical golf course. There are among them people who would like to be involved in things natural, intellectually challenging, with opportunities far beyond those of the conventional bird hike. There are people that are interested in birds who want to see places of excellence, places where the best current practices of stabilizing excellent bird faunal-space are at work—together—with a reward for a visit to a local outdoor “wonder,” and potentially new experience.

I knew that public land and water resources were present, and that they could not and cannot meet all of the needs, tastes, and preferences of the human population using them. They do not meet the intense needs of visitors, local or international, for guided bird watching and life-

list building (e.g., a record of 1,530 species placing a person 149th in the world). Occasional sighting of birds on public lands is not the same as active bird watching—a purposeful and directed activity. Active bird watching, on which I was instructed as a youth, is not the same as participating in BirdGolf.

I knew that in 1999, birding was among the top five fastest growing activities among 25% of the population. The number was increasing faster than the population! There were millions of “wildlife watchers,” and they seemed to be increasing, and among them the number of bird watchers had increased *4 times* in the 20 years before the turn of the century. In 2002, over 50,000 birdwatchers sent in their checklists of birds seen in their backyards to a national project requesting such lists. There is an interest, and it seems stalled, for there are no known new options. BirdGolf courses would provide fresh options for a perceived customer base.

I imagined a small group or individuals on the BirdGolf course during an early weekend morning.

*The bird watchers are greeted by a receptionist (in a tent, cabin, or Golf-course office), pay a fee or show membership, and have their membership numbers entered. Rules are explained to the novice and a rulebook is available.*

*Each watcher receives a “handicap” for the day and time based on the season and the weather, receives a recent list of birds likely on the area, and is admitted to the course. The watchers identify and check off species seen. (Numbers seen are not counted, except for personal interests.) Dates of birds seen became part of their personal records, with emphasis on benefits from the memories of when the numbered sighting was made.*

*Afterwards, during Monday-morning office coffee-talk, like bragging about the weekend golf score, they might comment on having “gotten 67 birds.” By now, coffee-colleagues would recognize that “having gotten” means “seeing and identifying with high certainty.” He or she also has a reported score—in this case 81—a computer-cranked number that pulls together the goodness of the day, his or her past experiences, the date, time spent, and climatic conditions.*

*Each person, as desired, is grossly tested before beginning for hearing and sight to achieve a personal calibration, a “handicap,” that may be included in the par for the course for them on that day. Each bird species is assigned a daily bird-conspicuousness index, and extra points are awarded for having seen inconspicuous or rare birds.*

*As in conventional golf, an honor system is at work. No one checks. Any paying person can use the course for any bird-related benefits that they desire...including casual walking and watching. Most players are expected to try to beat their prior score, or to best a score on the same chrono- and pheno-date as last year. Disturbing the birds, however, is discouraged.*

BirdGolf participants, along with ecologists and bird watchers worldwide, would be likely to be more interested in *phenological* time than standard time. This means that they are interested in seasonal advances, somewhat like farmers' talk about “the corn being late this year.” Phenology is the study of the occurrence of biological events (e.g., leaf fall, bud break, eggs hatching). Each BirdGolf course would have its own indicator plants for outdoor activity. Birds seen on a calendar date would be compared to those seen in other years on different dates, when the season was behind or advanced.

Of course, migration is related to conditions that affect these natural timing standards. Emergence of certain insects (a function of temperature, moisture, and photoperiod) will make some birds more conspicuous in some years than others. Some birding work is done consistently on the same date each year for these phenological reasons.

Players could keep their own life lists for birds seen anywhere, and a separate list for sightings on BirdGolf courses. Possibilities would increase as more courses become franchised. Players with exceptionally long lists could be featured on the Internet site for all participants. BirdGolf life-list builders could go from course to course, building a cumulative list.

*The managers of the courses are recruited from among people recognized as the best avian ecologists in the world, who then recruit and train local guides and aids. Competition among experts adds new rungs to a potential career ladder as an ornithologist, and the awareness of these opportunities is like fresh air into a room where there were few opportunities other than teaching or a rare job meeting the diverse demands of engineering firms doing impact analyses. The expertise required is almost unimaginable—calling for mastery of bird ecology to keep wild species in an area year after year. As a result, BirdGolf ornithologists notice that their reputations have grown immeasurably.*

*Bird richness in a small, easily-walked area is more a function of the presence of water and the ages of plant species than of the ecological communities present. Thus, while some plants age and become beneficial to some species, others fall out of usefulness to species, or the probabilities of bird-use declines. Of course, yearly differences affect insects and moisture, and thus the manager must monitor and accommodate the birds' needs for these resources. Such knowledge and attention is required, because profits related to all BirdGolf activity are dependent upon high, sustained bird richness.*

*Players observe birds at their own pace along trails, and are typically trying to see all of the birds of the carefully-designed courses over many visits. They try to “max out” a course, to get the greatest number of life-list additions from each BirdGolf course. They walk through well-managed habitats, especially planned by wildlife managers to diversify the birds and to make sightings likely and pleasant. The players may enjoy each sighting, the ecological relations of the birds, or they may be trying to best their personal previous score or out-compete a friend.*

*The courses are simply wonderful places to stroll. “Step-asides” are provided for observers so that a bird can be watched for as long as liked. The rules of passing and sharing observations are as explicit as those of conventional golf. Small children are discouraged from admission, for they rarely have interests in the different birds. Some courses may later have play areas with minimum instruction to keep the courses attractive to families.*

*Observers go through different habitats seeking the birds that are common to each. They may use the blinds available, take a boardwalk high into the trees to see warblers, or may walk near a marsh or mud flat to get to other species. There are places to sit and places to stand, as others continue walking by. Most people use binoculars, but a few use telescopes. Collapsible speakers' pointers are commonly seen and used to point to birds and the direction of a call. A serving-line model is used to prevent bunching-up (to see closely a rare and very quiet bird), or to minimize disturbance or maximize privacy along the course.*

Franchise courses would later become available, some in other countries. An international membership would be established with superior players announced. BirdGolf would work interactively with the Rural System **Tours Group**, **The Forest Group**, and **The Gardens Group**. Large **Alpha Earth** deposits made along courses would attract some birds. BirdGolf courses may exist alone, but the synergistic effects of many, closely-related Rural System enterprises can reduce the risks inherent in start-up operations, reduce costs and delays, and increase profitability and the probability of a satisfactory, memorable experience of all visitors and guests.

Rural System would market BirdGolf-specific rule books, books and CDs on bird watching, ornithology, and ecology, binoculars, specialized clothing, hiking staffs and pointers, listening aids, photographs, home bird feeders and houses, a lawn management service, avian pest management aids, and camera supplies. Night-course work would be available, with night-viewing equipment rentals.

Each week a report would be published online, naming the top 10-20 BirdGolf players on BirdGolf courses. A national list would also be presented. The best courses would be listed, based on all of the scores of all of the players. After a certain number, say 110, it would become harder to add a new species. Points would be awarded for these next-level advances.

*Several Rural System ownerships in the region are the first places that this challenging new sport became a reality. Other courses in the Eastern and Western U.S., Mexico, Belize, Uganda, Guatemala, Senegal, India, and elsewhere are created as franchises. Confident of the financial potential, the natural resource knowledge challenges are exciting for perceptive staff. It seems likely that the courses can offer exceptional students of ecology, ornithology, and faunal system management high-paying jobs that challenge their intellect, creativity and synthetic abilities as they participate with high financial contributions within the Rural System Conglomerate. As areas are added to Rural System management, suitability and potentials for BirdGolf course inclusions are be evaluated, especially for urban and urban-border residents.*

## Black Bears! A Business?

Once a state wildlife biologist, I have had more than ample experiences with black bears. As a youth, I made plaster casts of their paw prints. As a graduate student, I fed the bear cubs of a fellow graduate student, Alan Stickley, experimental diets, and helped weigh them to follow their growth. I have been involved with investigating a bear having killed sheep, and later a bear-poaching event.

The animal and its population dynamics are complex (as learned by my colleague, Dr. Mike Vaughn, and his graduate students at Virginia Tech, over many years). Rural System's **Black Bear Group** will seek ways to continue that research of black bears,<sup>1</sup> and use the results as a revived resource.

There is great interest in the bear as a game animal, tourist attraction, livestock killer, bee hive and conifer pest, and an interesting component of the regional natural ecosystem. Black bears, like grizzly bears, work with their young for several years. In this behavior I perceive an important message for human families and youth needing care and instruction for many years in future society.

The Black Bear Group of Rural System will be formed to gather knowledge on the black bear resource, synthesize it, create powerful models, and use the results in all Groups for tourism, recreation, protection, and reduced costs from bear-related property damages. The Black Bear Group, as other Rural System Groups, will seek to stabilize regional jobs and provide protection from many types of losses.

The bear is an important part of the present system of natural resources in Virginia. Quite a large resource, it is now virtually unused by a mere several hundred bear hunters statewide, a few days a year. It is seen as an unexploited resource that can be preserved, stabilized, and

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<sup>1</sup> IUCN. 1976. Bears, their biology and management. 3<sup>rd</sup> International Conference on Bear Research and Management. Morges (Switzerland).

managed for net gains. The Black Bear Group will likely do most of the following, and perhaps many other actions besides:

- Conduct hunts (legally—locally, nationally, and internationally);
- Process hides, flesh, bones, and body parts;
- Conduct tooth aging;
- Perform food habits analyses;
- Sponsor excellent taxidermy;
- Provide bear display sites, accompanied by an extensive blog and additional ongoing camera studies of behavior;
- Conduct wildlife law enforcement research;
- Prevent bear-related accidents and damages;
- Develop a GIS system relating to all aspects of their ecology and use;
- Create a world-class population model of black bears;
- Sponsor alternatives to bear parts in Asian medicine (to reduce and prevent exploitation of bears for their organs);
- Conduct prescribed burns for bear habitat production;
- Develop trails (with **Stoneworms**) into bear country;
- Conduct tours into bear country and bear dens;
- Encourage photography, and conduct a black bear photo contest with prize money;
- Sell quality, bear-related artwork;
- Provide memberships to an alternative organization of interest with newsletters and services;
- Hold periodic conferences on the black bear;
- Present a regional and national lecture series;
- Conduct bear-related studies;
- Provide a variety of consulting services;
- Market a bear-related educational game;
- Publish books on a variety of bear subjects (from folk tales to ecological compilations); and
- Market ecotourism, both locally and internationally, with participants seeking to see one of each species of all of the bears of the world.

The above list is long, and gains value and momentum as the units are combined. There are now many biologists that have studied bears. Their work is not well-known or integrated. We propose a series of in-depth interviews, then to recruit biologists/ecologists that are systems-oriented, and to develop a knowledge-based program on bears. We know of and appreciate the knowledge of bears among farmers and seek to gain from and benefit others with that knowledge, sharing in work together as we prepare for the great bear-related rural troubles ahead. No simple limits can be set, but a new, developing enterprise is expected to become a lasting operation with products, services, and opportunities made available by the Black Bear Group.

The following is a sample message from VNodal to a land owner, from a long set of prescriptions from within Rural System’s RRx for consideration by an owner. The prescription is followed by working concepts of the proposed Black Bear Group:

You may have black bear on or near your property. Your lands are large enough and have little disturbance so that black bear management is feasible. You have not indicated a high desire for such populations, but it is likely you will have a few on your area as a result of the natural productivity of the land.

Our Rural System Bear Group emphasis is on developing and maintaining a long-term system designed to be profitable, to achieve for you, as a citizen, modest access to the benefits of the bear resource, as well as from research of great public interest (itself a resource); intensive, cost-effective faunal-space management; intensive tourist management; and close attention to net benefits for you and your surrounding community. We suggest an opportunity for extensive education, modern tourism, and potential relations with alternative tourism interests within Rural System in other regions of the state.

Rural System holds an expanded list of potential benefits of *the bear resource*, those at the center of a large, dynamic area within your region. The benefit categories are:

- Services,
- Products,
- Structures,
- Events,
- Opportunities,
- Views,
- Information,
- Ideas,
- Inspirations,
- Memberships,
- Time, and
- Memories.

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Few people understand large, diverse rural resource systems. Citizens inquire of agency leaders, “How are things going?” and, like members of a board of directors, are willing to leave details to the CEO and officers. They want a system performance measure—a general grade on the system. They want to see a graph, and expect a flat or increasing main line to suggest all is well, or that the system is improving.

Herein we advance a beginning mix of ideas and concepts that may be useful in developing the potentials of a bear-centered tourism entity ... and its function in shaping self-sustaining modern tourism, as well as wild faunal resource management.

New technology may enable new studies of the distribution and abundance of black bears in remote forested areas. Some of these studies will relate new concerns (and legislation) to “biodiversity.” We propose a study of recreationists and others who will report the presence and location of observed bears via cell phones. These observations can be sent, recorded, and then mapped, and duplicates can be reduced by analysis of difference in time and location of reported observations. The information can be digitized, GIS-mapped, and then supervised processes can

be used to analyze potential or probable, desirable “seasonal faunal space” and abundance per unit type. Similarly, GPS equipment can be rented to recreationists with instructions for reporting bears observed.

A game animal, the bear is also a non-game species when the hunting season closes. We see a potential area for tourism development with the state, for pest damage management, and for extensive wild faunal management (related to Virginia tourism and adjacent public lands).

A **Bear Hunter Group** will some day gain name recognition for its care and treatment of dogs, full-scale use and development of all bear parts gained (after successful, legal hunts), farmer-protection investments in bear-related damage costs reduction (e.g., bees, sheep, pets), and supporting books, trips, studies, and counter-action and alternatives to *illegal* gathering and sale of “bear-parts” (hides, organs, skulls, claws, meat, and fat), some now sold illegally in international markets.

## The Guides Group

**The Guides** is a planned Group of people who love the rural area and often have “family lands.” They will be insured, certified, and gain special first-aid knowledge. The Guides will cater to the specific interests of clients (e.g., bird watching, plant collection, mountain scenery, special photographs, climbing trees, etc.) but will typically have select service routes and areas in which each “expert” will provide diverse services for fees. They will be advertised within one of the Rural System blogs, and locally in diverse ways.

The Guides will supply lunches and meals, and will work closely with the other outdoor Groups, such as BirdGolf, The Fishery, and The Plant People. They will be encouraged to work with writers and photographers. The major objective of most members of the Group will be to build memories.

Youth programs may be conducted by The Guides, working in teams. Special roles for old members of the community may be developed, e.g., **The Past 60 Group**. They may have special abilities for Appalachian Trail use by individuals or groups, perhaps introducing people to some sections of the Trail.

They may often lead tours conducted on modern farming practices, research results, problems in the food chain, pathways to future human food (including soil and range management), and stream and pond ecology.

The Guides, in recognized clothing, can create and build their own demand. For example, field trips are widely used within instruction in forestry. Individual forestry faculty go on conference-related field trips, or even conduct them. There may be unusual times when an entire faculty might experience “getting away,” going to a field site and discussing together, observing, sharing knowledge and asking questions. In the “land health” analogy of Leopold, such expeditions amount to a team of physicians visiting a patient.

## The Cemeteries Group

Throughout the land, landowners may discover burial markers and cemeteries. Such important sites are often abandoned. Rural System can help protect those found, learn from them, and in some cases, expand near them because they have embodied decisions of years past. Sites need markers, and our plan is to find and develop a caretaking and visitation strategy for these

areas. They may become attractive sites for hikers and visitors to the land. Care of them may reflect well on the “cultural and historic” dimensions of land use management.

**The Cemeteries Group**, along with **The Memorials Group** and **The Histories Group**, will develop a regional cemeteries file, as appropriate, with relevant historical, genealogical, legal, business-related, and ecological notes. (We search for meaning within their distribution in time and space.) The Cemeteries Group will map, photograph, and begin to redevelop failing cemeteries of the various properties under Rural System management. The Cemeteries Group will provide other Groups with cemetery information, and may ask **The Fence Group** for action, as needed, to fence-in sites to protect flora communities from human intrusions, floods, as well as from grazing and excessive “clean-up.”

The Cemeteries Group will relate to **The Lands Group** for real-estate records and related technical access. Gaining family histories is only a minor part of the Group’s role. The location, marking, and clean-up at a cemetery site, as needed, are perceived to be socially necessary, important, and of community interest as well as of great potential ecological interest and dedication to owners. Of course, such areas need to be protected and are actively limited in any proposed land use or restoration project. Each cemetery, existing or proposed, will be located within or near appropriate Rural System Alpha Units.

Cemeteries may offer a glimpse into original or early soils of an area (rarely not-plowed), with mowing and organic deposits. Some, with fences or walls, contain rare, original perennial plants (as suggested by Aldo Leopold). Fences may be needed to protect vegetation from grazers. The soil and algae mark on tombstones suggests the rate of erosion or soil loss within the height of soil splatter. A computer-based life-table approach to human population analysis based on the distribution of death dates on tombstones may suggest local periods of land use, human stress, disease, or wealth.

We shall work to complete such records and use them in historical and ecological analyses and projections, and make such documents a part of the history of each region, tract, or ownership. GIS analyses of cemetery criteria will likely allow us to find hidden spots of near-identical characteristics. The Cemeteries Group may ask for assistance in analyzing the areas and reporting on findings (necrogeography<sup>2</sup>).

With ownership permission, we shall investigate special garden spots nearby or within cemetery areas. (Our VNodal system may distribute site-specific information for success in such gardens.) **The Gardens and Yards Group** will select the plants (with relevant family advice where applicable). The presence of trees in Group lands is related to fruiting tree potentials, nearby arboreta (if any), and a potential role in a portion of the plot or placement of the ashes. A memorials strategy is suggested, including placement of pylons (from wood or more permanent materials).

“Are cemeteries an appropriate land use?” is discussed more and more frequently. Mausoleums may accommodate about 1,000 burials per acre, where one burial requires 0.001 acres. One acre can accommodate an average of 620 traditional burials (0.00161 acres per burial).<sup>3</sup> Cremation urns require one-eighth the space of a standard horizontal burial. For general computations of changing needs, the minimum burial plot size of 27 square feet can be used. As populations shift and operational land area per capita declines, attitudes toward burial may change. Travel costs and probabilities for site visits enter recent decisions. Yet, there will persist some needs for burial, site protection, ash disposal, conserving select elements, and for memorial

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<sup>2</sup> Knitten F. 1967. Necrogeography in the United States. *Geographical Review*. 57:426-427.

<sup>3</sup> Anon. 1950. Cemeteries in the city plan. ASPO Planning advisory service information report No. 16.

sites. We plan to study the role of tree groves and arboreta areas as desirable sites for human ash disposal.

In *McCaw vs. Harrison*,<sup>4</sup> testimony indicated that potential cadaver-caused contaminants to the ground water supply would travel no more than 50 feet from the casket. In other cases, cemeteries have been found to be public nuisances, where they endangered public health as a potential source of water pollution, or where they disrupted traffic in the surrounding community. Goldstein (1952)<sup>5</sup> suggested cremation as an alternative to the extensive above-ground burials made necessary in New Orleans and regional valley floods by a high hydrostatic level. Extensive study of “scattered remains in urban areas” has been reported by Stanley et al. (2015).<sup>6</sup>

Researchers have found social stratification of the dead.<sup>7</sup> High ground and easy access were most prestigious, though there is no correlation between cremation and class. In 1971, cremation was the means for disposal of remains by 4.8% of those dying in the US.<sup>8</sup> Both Roman Catholic and Jewish faiths discourage cremation. The cremation rate in 1998 was 23%, and predictions at that time indicated that economic difficulties would shift burials to cremations.<sup>9</sup> In 2014, 46.7% of Americans chose cremation, and the Cremation Association of North America said more people are choosing cremation due to its affordability and customizability.<sup>10</sup>

A possible simulation and inquiry for decision-making about spaces needed for cemeteries should include:

- Number of people within the region of interest;
- Estimated yearly death rate;
- Estimated acres of land required in cemeteries, per person;
- Types of preferred burials, including the proportion needing horizontal burial vs. other types; and
- Changes in human population (migration, etc.).

The Cemeteries Group will work intensively with **The Lands, GIS/GPS, Fence, Gardens, Arboreta, Trails, and Marketing Groups**. The Land Force will develop the surface up-keep. When mature, The Cemeteries Group will coordinate with **The Studies and GIS/GPS Groups** to locate and record cemeteries, especially pre-settlement human sites and slave cemeteries.

Lest it be missed, Rural System has strong, often-dependent relations between and among many Groups. Each might be somewhat independent, but with common reliance on Corporate Service Groups (Chapter 2). Each Group will be diversified and augmented, as suggested here.

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<sup>4</sup> Beuscher JH, Wright RR. Cases and materials on land use. Minneapolis (MN): West Publishing Co.

<sup>5</sup> Goldstein LA. 1952. A crematorium, columbarium and chapel for New Orleans, Louisiana. Thesis for MS in Architecture. Blacksburg (VA): Virginia Tech.

<sup>6</sup> Stanley M.C. et al. 2015. *Emerging threats in urban ecosystems: a horizon scanning exercise*. *Frontiers in Ecology and Environment*. 13(10): 553-560.

<sup>7</sup> Boggs, A and R. P. Miller. 1975. Social stratification of the dead. *Intellect* 104: 110-112

<sup>8</sup> Lublin, J.S. 1973. As burial costs go up, so does the popularity of scattering ashes. *Wall Street J.* 182 (60):1

<sup>9</sup> Ibid.

<sup>10</sup> Cremation Association of North America. “U.S. Cremation Rate Nearly Doubles Over Past 15 years.” PR Newswire: Press Release Distribution, Targeting, Monitoring, and Marketing. PR Newswire, 1 Oct. 2015. Web. 06 Jan. 2017 <http://www.prnewswire.com/news-releases/us-cremation-rate-nearly-doubles-over-past-15-years-300152328.html>

Each Group has likely very different income potentials and profits. *Multi-season* and *stability* will be key success components along with the many advantages of diversity, reliability, and shared income.

## Embodied Energy

**Embodied energy** (H. Odum) is a profound concept addressing the total collection of energy present (visible and temporarily on-display) in an object, such as an animal, human, machine, furniture, vase, etc. It expresses the cost of existence to date within a subject of substance (loss, waste, decomposition, crushed). The plant or unit of livestock forage has embodied energy.

Such emphasis can be related to antique furniture found in the rural region. I think of the high-energy costs to produce a hand-made rocking chair, being viewed (realizing many had been destroyed, lost, discarded, and here, before me, was a sole survivor). I see ancient vases in museums, and reflect on the vast amounts of energy to collect superior material, mold it, and do the needed furnace work. I count the failed and broken identical vases over the years as they were engaged in energy-reduction and loss themselves... the ones viewed as especially valued for their embodied energy and ability to do useful work.

Similar, I see a plant and the individual animal as a wonder, a wonderful, potentially live object of embodied energy. The costs are very detailed, losses great, inefficiencies evident start-to-finish, and in a different coin, the kilocalorie. Ancient people highly valued certain objects that we now find in museums, the last of them, equal, but preserved and protected for their great, usually-functional value, but also beauty, the one on display a favorite among the remaining few, the one having experienced “care.” There is real energy cost on display as beauty, results of careful treatment, being honored, at least given special caution and tending over abundant, though brief, periods. (Thus, I think beauty can be quantified.)

As fossil energy costs increase (the mix of them), embodied energy costs will become of conspicuously greater interest; it will become much better known in the new language of energetics. Broken, lost, worn out, place where “neither moth nor rust doth corrupt” ... are features of entropy, the on-going loss (of everything) to the cosmos. The natural resource manager's giant task is avoiding, slowing, and overcoming entropy... everywhere. Mastering and using that realm of physics and ecology will provide leadership.

## Cemeteries and Links

“Cemeteries” you read, and I know you’re probably thinking a question. I can imagine your face and position. I know your question, and I’ve already heard it: “*why in hell are you including a chapter on cemeteries in this book?*”

I once bought a cabin, and the owner gave me a cigar box of “Indian arrow heads.” I learned from the enclosed “points” —their size, form, substance, and from identical ones found elsewhere, I learned their ages (thanks to radio-carbon dating). “My” arrow and spear points were from traveling, pre-settlement-people who once gained water from my spring—groups of these people, only a few hundred years off the ice-free edge of the East coast of the glacier on what is now the USA.

The stone points told me of the existence of the people, their actions, their work, and how the artistry and effectiveness of each must have changed over the duration of their use at my

spring, from which the owner had collected and saved the stones. They lay hidden in an imported, wooden cigar box in the cabin basement before I arrived.

My brilliant (now deceased) graduate student, Seth Diamond, had an unusual undergraduate background, and taught me much about the history of the vegetation, thus ecosystems of the region, and thus available plant food for pre-settlement people—the same people who had dropped the points on the land I would later buy. They lived a mere few thousand years ago.

Years ago, I treated “a century” as an abstract mental image, or “part-of-a-thousand” as “a thing in a text book.” Now, at 83, nearly a century, time and its periods and history categories take on new and personal meaning.

I invite readers to join me as I imagine continental movement influencing early ecosystems—now our coal layers between giant earth erosion layers. I proceed eventually to glaciers, then to the cold climate they released at the now-Eastern-USA-edge, and finally I arrive at the ruffed grouse, *Bonasa umbellus*, as we now expect them—typically Northeastern or high-elevation forest birds. Ruffed grouse would have been common to pre-settlement people, but having left no trace among the aspen trees—not abundant, in their low, warm-elevation, southerly forest-fire edges. Much later, I studied ruffed grouse as a Boy Scout for my Eagle Award.

“Why write about cemeteries?” I hear, as I learn about soil splash at sides of my dad’s gravestone. I pondered the rate of erosion, and likely history for his headstone, as I read of local, recently-discovered cemeteries speaking loudly of natural system rates of action—expected change over time. I now expect that Mom’s ashes in a church-side grave site will be lost in “urban transition” ...during community rebuilding, rapidly-changing urban-border population needs, and “the rich garden flat space” near the old church side-door.

Why a cemetery section in this book? It is like a flag, a physical manifestation of something aphysical, of something very human that often provokes questions... and maybe useful answers. Seth taught me through his diverse studies about the likely abundant use of box turtles in the migrant, pre-settlement (USA) people, and of our near-omission, in our studies of passenger pigeons and probable vegetation, of loss of the American chestnut—once a major annual food supply for US settlers and pre-settlement-people, and most of the then-wild fauna. We grappled with the needs and perils of food storage by migrant early people, forgetting chestnuts. The tree seeds fed deer, supplying the hides for energy-loss reduction (cover and clothing), and thus balancing the energy needs, which had been exceeding the energy of available foods—for pre-settlement peoples—in our calculations.

On the rock layer gap above the cabin, I found with others a stone hand-tool and spear-point, somehow left at a thin, suitable sleeping place for a hunter on the small floor of “space,” with a stone roof, high on the mountain... adequate for a person in a thin, open cave. Dating indicated a post-glacial, pre-settlement person with a uniquely-shaped point—from just 7 or 8 centuries ago. He or she just left sculpted points in the sandy dust of the north-facing rock-layer with a roof. Down in the valley, a few hundred years later and below the resting place, a village would be built, with yet-unknown optimization in our questions about life *between* hunter-gatherers and villagers, or *among* people and their living volume on Earth.

I rarely can answer “why include cemeteries in a book about the rural future?” It takes time not usually available and it tends to question and enlighten the past more than the present, to find the past more than shape the future. In the past, form, function, and fauna were the problems; now we face similar problems with new technology and knowledge. The hard work

ahead is not so well-known, but is evident in leaders' influences, group results, and effective committees... using current technology and planning for the near future.

Cemeteries are attachments to the past, like museum pieces, and they'd better not be lost. They must be included in plans for physical changes for the future, and achieving, in part, one of the objectives of "museums." Cemeteries represent treasured history—the captured past, hints of the future that can be produced from them... and must be. In *Rural System*, **The Studies** and **PowerPlace Groups**, at least, will seek to discover and apply knowledge from them.

I wished, while writing, that parallels and connections within The Cemeteries Group and others of *Rural Future* would be made. I want readers to learn of things like the word "isomorphism," relating to things having the same structure, and to move past that word *to find and use the concept actively*, gaining efficiencies in managing nearly identical structures or forms in farmland, urban borders, and throughout life. Beyond "finding" same structures (and maybe functions too—a fun game), we can use them in potentially new, productive ways. I'd like that for the reader.

I'd also like for you to study, understand, and use **a systems approach** well and to find ways to practice its uses. (I practice it now, herein, setting my **objective** to "what I want readers to do" and using **feedback** as I face my inadequacy.) **Context:** I have no rights to expect, demand, even request such behavior. I resort to elements of **feedforward**. I fear that *Rural Future* may seem to be a dark book, full of bad news and excessive challenges. Some will understand its intentions as a book of hope, and a call to a pathway to suggested alternatives.

Far beyond the scale of giant trees and large islands with migrating birds were deep caverns, with small light-deprived bats that flew over future terrain and winter-land runoff. The cemeteries, symbolic of the past, may be *the* singular symbol of the future. They are mysterious past, pre-history, but with many messages of emerging society—people together, active and learning, migrating... and displaying the fundamental law of biology: *migrate, mutate, or die*. Some, while migrating, left arrow/spear points nearby my cabin. They left the gateway entrance to the *human, social component* of evident, current diverse rural resource management.

Owners and managers of rural lands, I believe, must study and display mastered knowledge of their lands and waters, to survive and achieve desired levels of success. They must engage all dimensions of society for the long-term—for the rural future... and they must grasp the major social dimensions of successful society *beyond* feeding and watering animals, fencing, fertilizing, plowing and seeding, harvesting, storing, weeding, marketing, and vaccinating. The human dimension needs emphasis. "Rural" is beyond "farm," and does not stop at the urban border.

"Rural" extends into the city office of the National Forest Ranger, a federal employee, one on a staff to manage each designated national forest. Perhaps within sight of, or even adjacent to, private rural land, that publicly-owned national forest land is under the control of a *large book* of definitions, rules, and regulations affecting use of the land... the "neighbor" to all adjacent owners, and what can be seen from them. The "public" land is part of the viewscape and landscape (and public water flows onto private land). The *private* owner may provide adjacent access to forest land for legal activity. Activity on the land of the forest is tightly controlled (timber harvests, managed burns, road building, clearings, plantations, etc.)—neighborly action—changing with changes in neighbors; "forest" names and designations; forest leaders, and their varied experience, education, age, and future plans; proximity to railroads or factories for wood sales; and the current public attitude (e.g., recent local forest fire impact, the roadside "ugly" timber and the "clearcut"). A message herein is that there is much more to the adjacent

public property (the national and state forests) than wood and pretty autumn leaves, sleepy streams, and big deer antlers.

Meeting social needs—said to be part of rural land management in some areas, and generalized and simplified to “education” in other areas—may have hidden purposes of *improved conditions* for people that will result from our teaching events. “Objectives-orientation” work, within a systems Context, emphasizes stated, desired change by specific people, resulting from using planned processes of teaching (intended behavioral change, ranging from scenic appreciation to safe campfire building).

We shall achieve some desired outcomes by direct, physical action on the lands or waters of ownerships... but also by changing surrounding private land and water (odors, noise, pollution, views, illegal energy and use), and nearby public land (often enhanced land value and taxation).

We shall work to improve the retail value of ownerships, and to improve markets. The thousands of acres of absentee rural lands, owned privately, can become a vast, splendidly-managed, profitable enterprise environment in the future, when the *human* dimension of the rural land and water bases are carefully, strategically managed as a system for *lasting*, long-term profit, fully-integrated among ownership clusters.

We can (and must) learn from the expectations of ancient post-glacial migrant survivalists, some from United Nations countries. We plan ahead, imagining being within a vast, Western Virginia region of scattered farms, left behind in family moves toward coastal Virginia (or within an imagined Earth region)—few people, aged farm clusters, and distant towns with abundant people, some congregating at urban borders. The picture is one of crowded, small groups of people within or nearby formerly “named” small cities, with travel “tentacles” to rural areas, residual clusters and work sites (e.g., orchards).

Seen from the city or urban border, the near future is not the remembered past. “Wishing” is not a “change-agent.” The present rural areas, within a period of from 2030 AD to 2050 AD, unless managed by Rural System or its equivalent, will be occupied by sparse surviving people. There will be a few housing units on the landscape. Urban people will escape to low-rent, multi-level living quarters, each inhabitant with a small, dense “marketplace,” more social than economic, most *thirsty* for abundant clean water and adequate food for their family, wounded, stressed, caring but with inadequate health, time, or trade to move past a claim of “destitute,” or “just cold,” standing beside a waste burner lighting the evening walls of 2-3 story buildings and pathways into the night where children never walk.

## About the Author

While many Americans are presently astonished at conditions in rural America, Robert Giles, Jr., Ph.D., has been working tirelessly for decades on planning solutions to interconnected rural problems. Dr. Giles is a Professor Emeritus of Wildlife Management at Virginia Tech where he taught for 30 years. His Bachelor of Science degree in Biology and Master of Science degree in Wildlife Management are from Virginia Tech. His Ph.D. in Zoology is from The Ohio State University.

Dr. Giles was born on May 25, 1933 in Lynchburg, Virginia. He attended E.C. Glass High School, during which he was awarded a Bausch and Lomb Science award for studies of the ring-necked pheasant. As an Eagle Scout, he was awarded the W.T. Hornaday National Award for Distinguished Service to Conservation and the James E. West Scouting Conservation Scholarship. During his undergraduate years at Virginia Tech, Dr. Giles was an editor for several magazines and the president of the V.P.I. Corps of Cadets of 6,000 students. He was also a member of seven national honorary societies.

During his time as a Professor in the Department of Fisheries and Wildlife at Virginia Tech, Dr. Giles was known for his innovative applications of computer programming and Geographic Information Systems (GIS) to land management questions well before such skills became standard practice within the field (and before GIS was a term). With the support of the Tennessee Valley Authority (TVA), he created the woodland resource management system of TVA, once used on 300 farms a year. With staff and students, he created the first wildlife information base (BOVA – Biota of Virginia database). As chairman of a local planning commission, consultant to the National Wildlife Refuge System, aid to the State Cooperation Commission, consultant for Wintergreen and several realtors, and as a landowner himself, he has developed a unique and alternative perspective on land and its management. He wrote the first plan for wildlife other-than-game for Virginia.

Dr. Giles began working on the Rural System concept in the early 1980s, but did not begin in earnest until his retirement in 1998. When asked about his aims for designing Rural System, he said, “I am now convinced that a superior demonstration of modern comprehensive natural resource management is badly needed and is now possible and most likely within the context of a new corporate rural structure. I do not want to do research. I do want demonstrations of the results of literally millions of dollars of unused research findings. I propose to bring all the power of the computer that I can to realistic and relevant use for parts of the region. This will include using that power already achieved by investments of resource agencies. I propose a system, subject to the law and to reasonable issues of cost, propriety, and community acceptance, that achieves such objectives.”

A colleague of his once said that Dr. Giles can come up with more ideas in an hour than most people can in a lifetime. His creativity is exceeded only by his humanity. Raised in Southwest Virginia, Dr. Giles knows the struggles of people in Central Appalachia, impoverished after the collapse of coal and tobacco industries. He has visited rural areas of Africa (Nigeria, Senegal, Uganda), China and India, and is well-educated in the sufferings of people in poverty worldwide.

Dr. Giles is a systems thinker. He believes that the problems faced by environmentalists and those of interest to humanitarians are interconnected, and that a system of problems must be met with a system of solutions. His career, his values, and his innovative capabilities make him

uniquely suited to tell the story of how a for-profit systems approach can best solve the rural problems of a progressive, capitalist society.

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