

# **Diversity in Community: Animals in the D Acres of New Hampshire Integrated Farm System**

*By Lauren Buyofsky, M.S. and Bill Errickson, M.S.*

In a time of corporate agriculture, increasing development, and rampant loss of our rural communities, D Acres of New Hampshire, a non-profit organic farm and educational homestead in the foothills of New Hampshire's White Mountains, is continually developing an integrated farm system to bring together plants, animals, fungi, air, water, soil, and community. Our efforts are focused on creating a diverse ecosystem that provides for human needs of food, fiber, shelter, medicine, and community, while encouraging other forms of life to thrive. Participants in the D Acres project include humans (staff members, residents, interns, apprentices, volunteers, and guests) and animals (oxen, pigs, chickens, bees, and worms), all of whom perform multiple functions for the whole by producing food, building soil, and developing community.

## **Oxen**

An essential element of the D Acres farm system is our team of oxen, August and Henri. "The boys" are the first step in our soil building process, each converting the grass and hay that they eat into approximately 40 lbs of manure each day. The manure they produce is collected and moved (via a manure cart that August and Henri expertly pull themselves) to our compost piles; when the manure is well decomposed, the finished compost is utilized in our no-till gardens.

Our 180-acre woodlot allows us to sustainably harvest many northern forest tree species for use as building materials, firewood, mushroom cultivation medium, mulch (in the form of wood chips, which are produced on-site using our waste vegetable oil-powered chipper), and specialty woodcrafts created in our woodshop. August and Henri are an integral part in our forestry operations at the farm, as they enthusiastically use their natural pulling ability to haul felled trees out of the forest. Working with the oxen allows for the selective cutting and removal of trees while avoiding the heavy environmental impacts that would otherwise result from using mechanized equipment. It also provides for a thoroughly enjoyable woodland experience for both human and oxen, allowing each to breathe in the fresh mountain air in the shade of the forest.

## **Pigs**

The pigs at D Acres are an integral part of the community, providing labor, food, and enjoyment. Our pigs, which include a Berkshire boar, three Yorkshire x Old Spot sows, and their resulting "Dorchester Dalmatian" piglets, also assist in soil production on the farm. Their manure, like that of the oxen, is composted for use in the garden system. The parent pigs are housed in an area that will serve as future garden beds; during their stay on this part of the farm, the pigs are adding nutrients to the soil via their waste and converting brush, briars, and other plant biomass into soil. Additionally, the pigs are busy rooting out tree stumps in search of grubs and other delectable treats, unearthing plant material that would otherwise have to be removed by human hands or machines. Most likely discovered accidentally by a farmer some time ago, the excellent land-

clearing abilities of pigs are being incorporated into our permaculture design quite successfully.

Pigs are one-third of a project termed the “G-Animal,” which is a combination greenhouse-animal dwelling. The structure itself is composed of cob (earthen building material blended from clay, sand, and straw), wood, and re-used scrap materials including plastic roofing and glass greenhouse panes. The southern side of the building serves as the greenhouse (to maximize sun exposure), while the northern side of the building is the animal dormitory. Young pigs reside on the lower level, which has free access to a yard and a pond, while chickens are their upstairs neighbors with free ramp access to a private, vegetated yard. The body heat generated by the animals at night when they are indoors, particularly through the cooler months, warms the north side of the structure, thus raising the ambient temperature in the greenhouse without additional energy expenditure.

Our pigs are also very conscientious about preventing unnecessary waste from entering our landfills. They eat a diet comprised of 100% waste food, which is collected from our local supermarket, bakery, bistro, bagel shop, yogurt manufacturer, sandwich shop, and university cafeteria multiple times per week. The “waste food diet” provides our pigs with fresh fruits and vegetables, breads and grains, and dairy products, allowing for well-rounded and nutritious eating meals while converting one element of the local waste stream into a resource.

A local, sustainable food source as well, our pigs provide pork in its various forms for on-site consumption by D Acres residents, hostel guests, and event participants. In the New England climate, where growing enough food to eat year-round can be a challenge, pigs provide a relatively easy and affordable lean protein source. The sale of live piglets is a bonus income source associated with the farm, as it brings in additional money but more importantly encourages an increase in sustainable agriculture and local food consumption in the region.

## **Chickens**

Like the pigs, the chickens at D Acres have a diverse role in the farm system. Their manure is also integral to soil building, serving as an exceptionally high nitrogen source that does wonders for the gardens once it is composted with other manures and vegetative waste. The chickens are experts at weeding in the garden; throughout the growing season, a few hens each day are placed in a “chicken tractor” over an area of the garden in need of weed removal. “The girls” busy themselves eating the weeds, including the roots, which they unearth in their search for worms and grubs beneath the soil surface. Throughout the season, weeds that we pull from the gardens are fed to the chickens to supplement their diets. In the late fall and/or early spring, our hens are also employed to clean the remaining vegetation (both weeds and crop remnants) and pests from our greenhouses. In the “G-Animal” structure mentioned above, screen windows in the chickens’ upper living area can be opened to allow direct access into the greenhouse portion of the structure. While consuming the weeds and insects, the chickens naturally scratch the soil, loosening the beds and prepping the area for compost application and cover cropping or next season’s plantings. In both the gardens and the greenhouses, the weeds and insects provide the chickens with a diverse, vitamin-rich food source that boosts both their health and egg nutrition.

The eggs produced by our hens are used primarily for on-farm consumption, but are also sold, when present in excess of our needs, as another of our diversified income sources. Eggs are available for D Acres staff, residents, and interns throughout the year, and are also served to our hostel guests and at our Farm Feast Breakfasts, monthly community events featuring all local eggs, pancakes, greens, potatoes, bacon, sausage, toast, and herbal tea.

## **Bees**

What farmers have known for generations, much of America is just beginning to hear about: We Need Pollinators! Without pollinating insects, many crops cannot produce fruit (think tomatoes, squash, apples, peaches, and most other fruit and nut varieties). Honeybees are an essential pollinator species in this country and throughout much of the world. Declining honeybee populations are getting the attention of not only beekeepers but also food producers worldwide.

We keep two small hives of honeybees, which, in addition to pollination, provide us with honey, pollen, and beeswax. To keep our bees well-fed and happy, and to encourage native pollinators to remain in our ecosystem, we offer nearby water sources and continuous blooms to provide pollen all season long. Additionally, we strive to create pollinator-friendly habitats to encourage their population growth by planting and encouraging volunteers of such species as bee balm, echinacea, borage, butterfly weed, anise hyssop, mullein, and marshmallow. Another bonus to this habitat-provision approach is that predatory wasps, which consume insects responsible for crop damage, are also attracted to the ecosystem.

## **Worms**

An integral part of any soil developing system, the “wild” earthworms on the farm do their share of breaking down compost, aerating the soil, and cycling nutrients through the farm system. We also have a collection of “domestic” red worms at D Acres; these dedicated vermicomposters are kept in a simple bin in the basement that could be very easily replicated for use in the average American home. The red worms live in a medium of soil, compost, and shredded paper, which is kept moist by adding small amounts of water. The worms are “fed” various types of food scraps, which are added to the bin approximately once a week. The worms essentially compost all of this material into worm castings, which we then use to produce a “worm casting tea” given to the plants in liquid form. The worm castings also function quite well as a top dressing for such plants as potted tomatoes and eggplants, which are heavy feeders.

## **People and Community**

In a system where we strive to reduce our consumption of fossil fuels and non-renewable energy sources, we are continually faced with higher demands not only on animal power, but on the power of community as well. We rely on strength-in-numbers to accomplish a multitude of tasks on the farm, but also rely on one another to feed our social beings. At D Acres particularly, we all have to grow enough as people during the summer months to survive the long New Hampshire winters. There are generally between five to twenty people living and working on the farm at a given time, and, being an educational center, homestead, and hostel, we host upward of 3,000 guests to D Acres

each year. Workshops and community events, which we offer throughout the seasons, provide a forum for us to share what we have in abundance, whether it be food, ideas, or common space, with the community. We host tours, films, and classes so that others may be inspired and empowered to take steps toward living lightly on the land and working for positive change.

In any ecosystem in which we are present, humans are inevitably facilitators of natural processes, including birth, life, and death. When making decisions as to what actions we should take, we need to consider and respect the history of the land as well as what is best for the whole ecosystem, not just any of the individuals involved, now and for the future. As humans, we are also blessed with the ability to listen to our ecosystem and learn from its constant evolution. By continually asking what is best for the whole system, what starts as a grain of sand's worth of understanding begins to develop and grow, and we can better facilitate the natural processes for the greater whole.

In our permaculture-influenced system, our animal companions are some of our most valued community members. They act as a bridge from our farm system to the greater community, offering friendship and enjoyment to the many people, young and old alike, who identify and connect with the animal kingdom. Our oxen and pigs peak the interest of visitors who may not otherwise be drawn to the agricultural practices we employ, while the chickens, bees and worms offer examples of how individuals and families can put small-scale animals-in-permaculture operations into practice at home. As we continue to adapt and evolve, it becomes more and more apparent that the animals in our farm system are some of our greatest teachers; while people tend to think we know the answers, animals have an innate, unparalleled understanding of our world. If we are prepared to listen, they are willing to help us remember how to sustainably coexist in the ecosystem we all share.

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*To learn more about D Acres of New Hampshire Organic Farm and Educational Homestead, or to arrange a tour of the farm, please visit [www.dacres.org](http://www.dacres.org)  
To contact us, or to join our monthly e-mail list, please e-mail D Acres at [info@dacres.org](mailto:info@dacres.org)*