Landscape Restoration and Stewardship Funded in Perpetuity through Home-site and Golf Course Development

Authors
Roger Smith, Michael Brownfield, Toni Harlan, Judith H. Shepherd, Charles D. Laird, and Diane P. Genereux

Abstract
A challenge for sustainable development on restored landscapes is to secure funding in perpetuity for restoration. We report on a project that has provided a stable source of long-term funding for restoration in conjunction with development of housing, a golf course, and other amenities. At the restored site, historic grazing and a dam system had degraded hydrology and vegetation. Post-restoration ecological metrics now indicate a five-fold increase in spawning trout, and doubling of bird species. Private funding supports prairie and wetlands restoration efforts through a contractual sales-transfer fee and homeowners’ dues. A naturalist coordinates restoration and land stewardship. The project provides a model for restorative-development projects supported in perpetuity.

The restoration of degraded landscapes in recent years has been motivated by economic incentives and legal regulations, as well as by burgeoning recognition of land-stewardship responsibilities (Reeve, Lichatowich, Towey, and Duncan, 2006). In the American West, funding for restoration projects has derived from both public and private sectors. An ongoing challenge for land restoration efforts has been to secure a stable source of funds to maintain restored landscapes (Ehrenfeld, 2000; Holl and Howarth, 2000).

During the twentieth century, conservation efforts in the United States were dominated by large-scale federal projects. The past century brought the development of the National Park and National Forest Systems, the National Wildlife Refuge System, Wilderness Areas, and the Bureau of Land Management. These large-scale conservation efforts have been supported through federal budgetary consent.

In recent decades, private land conservation efforts have increased dramatically (Land Trust Alliance, 2010). For example, by 2010 in the U.S., land trusts had conserved more than 19 million ha, up from ~9.6 million ha (Land Trust Alliance, 2010) in 2000. This dramatic expansion of conserved lands reflects the burgeoning use of conservation easements. It also reflects the extent to which private landowners are increasingly interested in supporting and engaging in conservation efforts.
Here we describe how the challenge of securing long-term funding for conservation projects was addressed in efforts to acquire and restore prairie and wetland habitat on a then-working 710-acre ranch near Jackson, Wyoming. This ranch was purchased by a group that subsequently developed an 18-hole golf course and residential community on the property. Degradation of this landscape had occurred during a century of intense grazing by horses (*Equus caballus*) and cattle (*Bos* spp.). These historical impacts were exacerbated by construction of a major dam and dike system offsite, with negative consequences for local hydrology and for the ecology of an onsite narrow-leaf cottonwood (*Populus angustifolia*) forest.

Restoration efforts on this property, now known as 3 Creek Ranch, are supported through development of luxury residential housing and a golf course, and have led to reestablishment of prairies, spring creeks, and wetlands (“3 Creek Ranch, Jackson Hole”). The project is sustained through a contractual sales-transfer fee and monthly homeowners’ association (HOA) dues that currently support and will endow the property’s Nature Center. An onsite naturalist, supported by the HOA, coordinates efforts to monitor and promote restoration, and runs education programs that foster land stewardship and community involvement in landscape restoration and preservation. We describe several successful features of this restorative development project, and propose that they can be adapted and implemented on many scales to foster and sustain restoration of other human-inhabited landscapes.

**History of the Restoration and Development Project**

**Identification of the Property**

Two of the authors (TH and MB) first visited the property in the winter of 2000. The former 4 Lazy F Ranch in Jackson, Wyoming consisted of 710 acres of pasture, hayfields, wetlands, cottonwood (*Populus* spp.) forest and three spring creeks that flowed year-round and contained native cutthroat trout (*Oncorhynchus clarki bouvieri*). The property had been used for many decades as a cattle ranch, but had potential to be restored as a habitat for birds, small and large mammals, native grasses, and shrubs. There was also substantial opportunity for restoration of wetlands and spring creeks. Hay fields on the upper bench of the former ranch were noted for their potential as sites for development of a residential community and golf course.

**Entitlement Process**

After a period of investigation and due-diligence inspection of the property, developers obtained an option to purchase, and initiated the legal entitlement process to secure approval to develop the property. Prior to groundbreaking, the developers collaborated with environmental consultants to write a mission statement emphasizing the landscape restoration goals of the project. After a series
of public hearings, developers obtained entitlements from relevant governmental agencies. Public hearings had a real impact on the entitlement and design process, and set the foundation for a collaborative and solution-oriented approach among all interested parties. Discussions were held with the Jackson Hole Conservation Alliance, the main conservation group in Jackson, WY. The Conservation Alliance was consulted for input on the proposed project; its support was a key factor in obtaining approvals during the entitlement process. Through cooperation with the Alliance and local city and county commissions, approvals for development and restoration were obtained in a timely fashion.

**Identifying Expert Consultants**

County regulations require that large-scale developments have a Natural Resource Management Plan (NRMP) that includes guidelines and regulations for a water quality monitoring network, chemical application standards, and overall landscape planning to ensure that the development does not result in negative impacts to these resources. Local consultants were selected to develop an NMRP, and to guide various aspects of the development process to ensure compliance. Development and ecological restoration experts included a landscape architect, a land surveyor, an engineering group, hydrologists, wetlands- and stream-restoration experts, architects, and a golf-course design group.

Two naturalists were recruited to develop and implement a plan for the onsite Nature Center. They coordinated the vision and efforts of other consulting professionals, and developed a stewardship program to restore and create new habitat. Drawing on their prior experience with local raptors, the naturalists established an onsite education, conservation, and wildlife-rehabilitation program, with emphasis on raptors.

**Funding the Initial Efforts, and Long-term Stewardship, through a Sales-transfer Fee**

Initial costs of restoration are usually considered as a component of development costs in many land development projects in the U.S., and were so considered in this project; long-term stewardship typically requires a separate funding mechanism. A key and initial goal of this development/restoration project was to provide a sustainable source of funding, and to ensure that each homeowner had a direct investment in, and connection with, the restoration aspect of the project. To this end, a sales-transfer fee was established as part of the deed for each property. The fee requires that the seller contribute 0.2% of the sales fee to the stewardship fund each time a property is sold. In the event that sales transfer fees accrued in a given year are insufficient to support costs for continuing restoration efforts and for the Nature Center, the HOA is obligated to cover any shortfall through homeowner fees.

Eighteen months into the project, near the end of the entitlement process, funding for the entire project was obtained from a development fund. Investors in this development fund recognized ecological restoration as integral to the economic
outcome of the project, and thus shared the values of restorative development. We estimate that more than 5% of land procurement and development costs were directed towards restoration efforts. It is likely that amenities of restoration and the Nature Center together substantially increased property values and more than offset the developers’ initial investment in restoration. Available data, however, do not provide information on the extent of these likely increases.

**Restoration and Development Activities**

**Restoring Creek Beds and Creek Banks**

A key goal of the 3 Creek Ranch restorative development project was to remedy the degradation of riparian areas. Over the past half century, the ecological function of most small, spring-fed side channels of the Snake River in Jackson, Wyoming had been negatively impacted by a dam and over 30 miles of levees constructed for flood control (Anthony, 1998). The cessation of the periodic flooding of these tributaries had led to degradation of riparian ecosystems through sedimentation and loss of habitat suitable for fish-spawning and for the regeneration of native cottonwood trees. Only a few side channels and spring creeks remained active as fish-spawning habitat. Diversion of water from the Snake River and Gros Ventre River for irrigation of ranch lands adjacent to 3 Creek Ranch had created numerous hydrologic impacts within 3 Creek, including altered timing and intensity of peak flows, channel width-to-depth ratios, substrate size, and excessive sediment loading.

Portions of two of the creeks that remained active, Blue Crane Creek and Spring Creek, exist partially on 3 Creek Ranch. The naturalist provided oversight of a major effort to restore and rehabilitate 3.5 miles of spring creeks to improve habitat for native cutthroat trout. Oversight was also provided for the construction of three ponds designed and built specifically to provide winter habitat for trumpeter swans (*Cygnus buccinator*). Wetland restoration spanned a substantial portion of the property. The restoration created additional wetlands, including large ponds surrounding the ~200-acre golf course. Sod from native wetlands was placed along the perimeters of these new ponds, permitting establishment of five plant species native to western wetlands, including hardstem bulrushes (*Scirpus acutus*), Beaked Sedge (*Carex utriculata*), and Nebraska Sedge (*Carex nebrascensis*). These new plantings also provided substantial bird habitat on the perimeters of the ponds.

**Restoring Riparian Areas and Grasslands**

Riparian areas near Jackson, Wyoming are typically dominated by populations of Colorado blue spruce (*Picea pungens*) and narrow-leaf cottonwood. Prior to restoration, the extent and apparent health of native river bottom cottonwood forests on the ranch had been compromised by many years of livestock and horse activity. The dam and levees that had existed on the property for several decades disturbed the periodic floods that facilitate reproduction of cottonwood trees
(Anthony, 1998). In contrast, spruce, which are not dependent on flooding for reproduction, had come to dominate areas where historical flooding regimes were disturbed, a phenomenon that has been described elsewhere (Anthony, 1998). To redress these problems, efforts to restore trees at 3 Creek Ranch focused on restoring conditions favorable to the reproduction and persistence of cottonwood.

Grasses that had become established in the absence of flooding regimes posed a particular challenge to cottonwood reproduction. These grasses had dense root structures, enabling them to outcompete other plants for access to space for germination. The sexual reproduction of cottonwoods, in particular, was severely limited because few seeds were able to germinate amid dense grass roots. The vegetative reproduction of cottonwoods was also limited by a herd of approximately 800 elk (Cervus elaphus) that ate new suckers that emerged on existing trees. The elk herd continues to roam the ten miles of the Snake River riparian area adjacent to 3 Creek Ranch, and typically visits the property each summer and fall. Efforts are underway to use fencing to protect from elk the emerging cottonwood suckers and new plantings.

The cottonwood-spruce riparian ecotone on 3 Creek Ranch abuts approximately 300 acres of open meadows. Prior to restoration, these meadows consisted of both native and non-native wetland, and upland grasses, forbs, and shrubs. These meadows had been heavily impacted by decades of horse grazing. Initial efforts to restore prairie habitat consisted of removing horses and fences, aggressive management of noxious weeds, installation of native willow and sod along creek banks, and planting mixtures of native seed.

Approximately two years of year-round time and effort went into this initial phase of landscape restoration. Considerable time was given to ecological restoration of the three spring creeks. Shallow ponds were designed specifically for trumpeter swan feeding and loafing habitat, and were constructed in parallel with restoration of spring creek and wetland habitats. The development team also established protocols for periodic maintenance of all restoration programs in perpetuity. For example, all three spring creeks on the property continue to receive varying levels of additional water from upstream irrigation practices. This irrigation water comes from the Snake and Gros Ventre Rivers, and bring with it sediment and silt into spring creeks during seasonal high-flow periods. Every four years the naturalist leads efforts mechanically to remove sediment and to clean or replace fish-spawning gravels.

The upland grass meadows adjacent to the riparian areas also had been impacted by over 80 years of livestock grazing, resulting in establishment of non-native grasses and noxious weeds. Immediately after acquisition of the property, an aggressive weed-management program was begun in cooperation with the County Extension Office. Livestock were removed, plant species of concern were identified, and an appropriate long-term management plan was developed. Within two years of these interventions, native grasses and shrubs started to return.

Effective, ongoing management of the restored native prairie habitats is facilitated by communication and collaboration between the naturalist and golf course
personnel. A key goal of this collaboration is to allow operation of the golf course and other recreational amenities, as well as the residential properties, without compromising the quality of the restored native areas on the property. Golf course maintenance includes application of biodegradable herbicides and pesticides that were selected to surpass the requirements noted in the county-required NRMP.

The quality of surface and ground water is monitored to ensure maintenance of a healthy aquatic ecosystem. Water quality in wells, ponds, and streams of the development was monitored eight times per year during the initial five years of the project, and since then has occurred four times per year in summer months. Tests of water turbidity, pH, dissolved O2, and temperature, and the levels of chemical herbicides and pesticides, have consistently revealed that water quality meets or surpasses the standards mandated by federal and state agencies. The town of Jackson, Wyoming provides domestic water and sewage treatment for the development.

**Development of Residential and Recreational Facilities**

The 3 Creek Ranch development now includes 136 residential lots, an 18-hole championship golf course, fitness center, tennis courts, swimming pool, clubhouse, bike paths connecting to the existing community bike-path system, and groomed cross-country ski trails. Spruce, aspen (*Populus tremuloides*), and shrubs were planted around residential sites and common areas in strict compliance with established guidelines set forth in the Covenants, Conditions, and Restrictions (CC&Rs) of the development with the complementary goals of increasing habitat for birds, and providing visual screening. Most of the other landscaping at home sites is restricted to native species, and is maintained without chemical herbicides and pesticides. Watering of native species occurs primarily during an initial two-year establishment phase.

**Establishing Housing Opportunities for Employees and the Broader Community**

The 3 Creek Ranch development includes subsidized onsite rental housing for employees. Offsite affordable housing was provided as mitigation by 3 Creek Ranch, and is conveniently located near schools and public transportation.

**Ongoing Operations**

**Nature Center**

The 3 Creek Ranch development team sought to engage property owners as stewards of the restored landscape. To this end, the Nature Center was established to educate and involve residents of the development in landscape health and monitoring, and to provide a model of land stewardship that other developments might follow. To be successful, the Nature Center and its Naturalist Program needed to be embraced by development leaders, sales and marketing teams, and
future and current 3 Creek residents, and to be supported financially through the governance documents of the HOA. In particular, the Nature Center had to be a part of the project ethos from the outset, and in perpetuity.

The Nature Center supports a year-round Naturalist and Outdoor Pursuits Program, and is located in a restored, 1,000-square-foot homestead cabin in the center of the development. The Nature Center is the focal point for residents and potential owners to participate in outdoor recreational and educational activities, both within the development and in the surrounding region. The Nature Center and its Naturalist and Outdoor Pursuits Program were key marketing elements that distinguished the development from others.

For 3 Creek residents and their guests, the Nature Center serves several functions. It is a meeting place for scheduled outdoor activities, and houses a library of field guides, natural history books, and maps of the region. It also maintains a collection of mammal skulls and skins for interpretive talks, and equipment such as spotting scopes, binoculars, and technical instruments to measure water quality and quantity. Each week, the naturalist provides a presentation at the Center on topics of natural and human history, and hosts guest speakers from the community.

**Land Stewardship, and Monitoring of Plants and Animals**

During the early entitlement phase of the project, the naturalist supervised compliance with the environmental stewardship requirements of the U.S. Fish and Wildlife Service and the Wyoming Game and Fish Department. These supervisory efforts included updating an atlas of native and exotic plants. Animal diversity and abundance records were collected for songbirds, raptors, trumpeter swans, stream macro-invertebrates, and amphibians. The naturalist operates a Monitoring Avian Productivity and Survivorship (MAPS) station on the property, records patterns of elk movement, and monitors stream pH, dissolved oxygen concentration, turbidity, water temperature, and seasonal-flow discharge.

The naturalist maintains a year-round schedule of guided outdoor events and activities to foster and sustain residents’ awareness of natural history and ongoing restoration efforts. Guided summer activities include weekly day hikes, a bicycling program, canoeing and flat-water kayak trips on local lakes, stargazing and astronomy evenings, wildlife viewing, and birding trips in the local area. In winter, the naturalist oversees management of an onsite Nordic ski track, and offers weekly ski clinics, snowshoe trips, and winter outings throughout the local area.

**Fishing Program**

The naturalist designed and created a weekly calendar of angling opportunities to regulate and monitor angling activity at onsite spring creeks. This structure was implemented to ensure long-term ecological integrity of the creeks and the fishery, while providing significant angling opportunities for residents. A full-time fishing guide manages the angling program from the Nature Center. The fishing program is highly regulated, with an established ‘beat system,’ which prevents over-fishing in any one area. Fishing is catch-and-release only, and is highly restricted during spawning periods.
Raptor Rehabilitation Center
Initially, the naturalist managed a year-round raptor rehabilitation and education center from facilities located at the Nature Center. In the past three years, the raptor program grew and it soon became clear that the number of raptors in need of care far exceeded the space capacity and naturalist’s time required for their care. As described below in the Broader Impacts section, the Center was successfully moved, with assistance from the development, to become the Teton Raptor Center.

Mechanisms to Provide Funding in Perpetuity
The naturalist program is funded by the HOA out of a portion of the monthly HOA fees contributed by each household, and from a 0.2% tax on sales and resales at 3 Creek Ranch. Portions of these fees continue to build an endowment for the Nature Center, the naturalist activities, and continuing restoration efforts.

Methods for Surveying Birds and Fish
Bird counts for which data are reported here were conducted, beginning in 2002, by the same individual (RS) as part of weekly stewardship responsibilities, and are an on-going activity. Counts are conducted and recorded by walking the same areas on the property two to three times a week, for approximately two hours per observation period, and in representative vegetation types. Bird species are identified visually by using binoculars, and aurally through recognition of bird calls and song. A majority of bird counts were conducted between sunrise and late morning hours. Some birds were observed and recorded opportunistically, and not during scheduled stewardship events. Homeowners joined RS for many bird-count outings.

All cutthroat-trout redd surveys reported here were conducted by RS, with assistance from a local Game and Fisheries biologist, and are ongoing. Individuals conducting surveys walk slowly along each creek bank. Disturbed or cleaned gravel or cobble areas showing a pit and a tail spill are recorded as a trout redd. The location and estimated size of each redd is recorded and mapped on aerial photographs. Typically, surveys are conducted each year in late-April, mid-May, and mid-June along all spring creeks on the 3 Creek property. Because of high silt levels in Cody Creek during an April survey period, data reported here include late-June redd counts for this creek.

Results of Restoration as Assessed through Wildlife Surveys
Fostering the return of native cutthroat trout was an important goal of this restorative development project. To this end, restoration of stream beds with spawning gravel was carried out over the four-year period from 2004 to 2007 (Exhibit 1A). Prior to and during the first year of gravel restoration efforts, fewer
Cumulative numbers of (a) Linear Feet (LFT) Spawning Gravel Placed, (b) Homes Built, (c) Shrubs Planted, (d) Aspen Planted, and (e) Spruce Planted during restoration efforts from 2002 to 2010. With the exception of Homes Built, for which an upper limit was imposed by the 136 sites available on the property, quantitative goals were not established prior to restoration efforts.

than five spawning redds were observed in each of three years (Exhibit 2A). Within a year of the start of gravel addition, the number of spawning redds began to increase; at least 20 redds were observed in each of the three years following completion of this restoration in 2007 (Exhibit 2A).

The addition of gravel in potential spawning areas was thus correlated with the number of redds in the areas restored. The increase in redds began in 2005, one year after the start of gravel addition, and has not declined substantially following the onset of restoration. From these observations, we conclude that the potentially
disruptive process of restoring gravel did not lead to substantial transient declines in habitat quality, and is consistent with a nearly immediate, and lasting, positive impact on the fish population.

Home construction began in 2005, and continued through 2010 (Exhibit 1B) to the present. New plants were established on and near home sites and the golf course during the same time period; cumulative numbers of shrubs (Exhibit 1C), aspen (Exhibit 1D), and spruce (Exhibit 1E) increased in concert with the construction of homes (Exhibit 1B). The number of bird species observed increased during these construction efforts, with a doubling of species from 60, as observed in 2005, to 120, as observed in 2010 (Exhibit 2B). The finding of a positive correlation between the amount of vegetation planted and avian species richness suggests that plant restoration was beneficial, even in the midst of construction activities and the ensuing greater density of homes.

In addition to an increase in the numbers of bird species observed during and following the restoration period, the number of individuals of at least one migratory species observed on the property—the trumpeter swan—showed substantial increases. Following completion of pond and wetlands restoration, the number of individual trumpeter swans observed per day increased from 15 to 40, with over 100 swans observed on many days in November through March. Data for future years will be required to assess whether these high counts for species and individuals indicate the establishment of stably increased diversity and population densities.
Broader Impacts on Habitat, Wildlife, and Stewardship

Establishment of the Teton Raptor Center

As mentioned above, a Raptor Rehabilitation Center established by the naturalist program grew quickly, and soon surpassed the space capacity and the naturalist’s time required for the raptors’ care. The Center was moved to a new location in the community, and became the Teton Raptor Center, under the direction of three full-time staff, and more than 40 volunteers.

The Center now hosts more than 20,000 guests per year, who visit to learn about raptors and local natural history. The Teton Raptor Center is now a self-sustaining, not-for-profit entity that houses injured and falconry birds, conducts outreach-education programs, and assists federal and state agencies in raptor conservation efforts. The Center is licensed at both federal and state levels. Individuals from 3 Creek Ranch continue to assist in these offsite conservation programs.

Reopening of Fish Corridors

Restoration of corridors for native fish is an essential priority in the construction of riparian ecosystems (Evans and Johnston, 1972; Gowan, Young, Fausch, and Riley, 1994). Restoration of fish habitats at 3 Creek Ranch would be of little value if offsite creeks were not also clear for passage of Wyoming’s only native trout, the cutthroat, and the non-native brook trout (Salvelinus fontinalis). An unobstructed passage way for spawning fish to travel from creek headwaters to meet larger populations at the confluence with the Snake River was a goal for both 3 Creek Ranch and upstream property owners. To assess for possible obstructions upstream, the 3 Creek naturalist approached neighboring property owners to inform them of the goals and progress of restoration on 3 Creek Ranch. In response, upstream neighbors elected to hire the biologists who had worked on 3 Creek Ranch to restore creeks on their own properties. The ensuing offsite restoration projects identified numerous problems, including culverts inappropriately elevated above stream level.

One successful project was funded privately and by a grant from the local Fish and Game Department. The project included removal of a weir dam built in the early 1900s, and its replacement with an effective cross-vane weir fish ladder (Exhibit 3). The removal of this water obstruction made available over nine miles of spring creek water, including over three miles of high-quality spawning habitat. A follow-up program has been established to monitor near- and long-term outcomes of this project.

Key Lessons and Concluding Remarks

The restorative development of 3 Creek Ranch provides a model for how land restoration projects can be initiated by developers and sustained in perpetuity by
Exhibit 3 | Restoration Impacts on Neighboring Properties

Replacement of a weir (left), four feet in height, with a fish ladder (right) restored fish access to nine miles of creek water, including high-quality spawning habitat. Photos by Brian Remlinger, Alder Environmental.

contractual agreements with homeowners. Several key features of the project serve as lessons readily applicable to other restorative development projects:

Cultivating Shared Values with the Local Government and Community

Development of a mission statement early in the entitlement process helped property developers, local government, and local citizens to focus on the dual property development and restoration goals of the project. Gaining the support of a local conservation group was instrumental in establishing this dialogue. The moderate size of the adjacent residential community encouraged multiple in-person meetings. Such direct meetings with a majority of local residents may not be feasible in some larger communities. Internet-based communication systems, however, could be used to invite comment and contributions on emerging mission statements for similar development projects in both rural and urban settings.

Long-term Monitoring of Habitat Quality

The 3 Creek Ranch sales-transfer fee ensures funding for the naturalist position and for the Nature Center. This mechanism ensures the continuity of monitoring of restoration outcomes, and of opportunities for homeowners and their guests to learn about local ecology. Monitoring efforts require resources proportional to the size of the property under restoration. Restoration and monitoring on a larger scale are feasible when larger land areas have proportionally more homeowners. For sparsely populated developments, a large fraction of the total restoration costs fall on each individual homeowner. This may impose an upper limit on the magnitude of possible restoration efforts when property owners are few.

In our project, wildlife census data were collected before, during, and following the initiation of development and restoration efforts. Our recommendation for similar projects in the future is to begin onsite data collection efforts several years prior to the initiation of restoration, and also to include quantitative data on water
quality and use. Such data will provide information on baseline annual fluctuation in water and wildlife patterns. Data from un-restored neighboring properties and for small, un-restored areas set aside onsite will provide useful controls and information on the scale of the impact of restoration efforts. Interpretation of future measures of restoration outcomes will benefit when collection and analysis of such control data are planned from the outset of the project.

**Engaging Homeowners in Study of Local Ecology**

The 3 Creek naturalist is aided in wildlife monitoring by homeowners who volunteer as participants. Many of these property owners have gained an introduction to restoration ecology through the Nature Center. Here, scale clearly matters in that small property developments will find it more difficult to sustain the costs of a natural history center, and to support a resident naturalist. For larger developments, several naturalists may be hired without imposing unreasonable costs to individual homeowners. History indicates that volunteer efforts will likely be scalable. The Audubon Society’s Christmas Bird Count has engaged the wildlife-monitoring efforts of volunteers since 1900, and demonstrates the richness of data that can be collected through extremely large-scale citizen-scientist projects. Future restoration projects may also benefit from establishment of funded internships for researchers to study restorative development.

**Ensuring Economic Stability for Projects of Various Sizes**

The goal of funding restoration efforts in perpetuity was met in the 3 Creek Ranch project through establishment of a sales-transfer fee, in conjunction with contributions from a monthly HOA fee. Development initiatives on the smaller scale of tens rather than hundreds of acres can focus on pairing residential development with initiatives to foster sustainability and restoration goals. The Cohousing Association of the United States (2012), for example, notes the preservation of moderate-size tracts of open space as a frequent community goal. A sales transfer fee in some such instances may be appropriate to sustain conservation and restoration of these shared open spaces, and could also support employment of a naturalist if salary costs were shared among several cohousing communities.

An alternate approach, perhaps more suitable for large developments, is for the real estate developer to provide an initial lump-sum endowment for restoration and conservation efforts. This approach was used to establish and now supports the Santa Lucia Conservancy in Carmel, California, whose responsibilities include restoration and maintenance of natural areas in the nearby 20,000-acre Santa Lucia Preserve. The Preserve includes home sites and a golf course on 2,000 of these acres; the remaining land is maintained as a nature preserve. Both 3 Creek Ranch and The Preserve are innovative models for private ventures that secure funding for restorative development, and that complement ongoing, publicly-funded projects. 3 Creek Ranch provides the added benefit of ensuring that direct and sustained financial support is provided by the property owners themselves, thereby more directly engaging them in stewardship of the restored landscape.
References


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Roger Smith, Nature Center, Jackson WY, 83001 or rsmith@3Creekranchhoa.com.

Michael Brownfield, Jackson, WY 83002 or mbrownfield@me.com.

Toni Harlan, Jackson, WY 83002 or toniharlan@gmail.com.

Judith H. Shepherd, University of Washington, Seattle WA 98195 or jshep@u.washington.edu.

Charles D. Laird, University of Washington, Seattle WA 98195 or cdlaird@u.washington.edu.

Diane P. Genereux, Westfield State University, Westfield, MA 01086 or dgenereux@westfield.ma.edu.