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Tools for Private Land Conservation

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University of Wyoming Ruckelshaus Institute of Environment and Natural Resources

The Whitney MacMillan Private Lands Stewardship Program within the Ruckelshaus Institute at the University of Wyoming focuses on a range of pressing issues affecting private landowners and private lands throughout the West through expertise and interdisciplinary collaborations across natural resource management, rangeland ecology, business and finance, law, decision-making, collaborative processes, and other fields.

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The Beyond Yellowstone Program brings together partners to study and share the story of the Yellowstone ecosystem's wildlife, lands, and people to support large-scale conservation.

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Primary Tools

SHORT-TERM PROTECTION

(Habitat Lease, Grassland Conservation Reserve Program, Occupancy Agreement, Buy-Protect-Sell, Grassbanking)

WILDLIFE CONFLICT REDUCTION/MITIGATION

(Occupancy Agreements, Disease Compensation, Conservation Development, Grassbanking)

LONG-TERM PROTECTION

(Conservation Easement, Buy-Protect-Sell, Options to Purchase at Agricultural Value, Grassbanking, Conservation Development)

As the West continues to grow in popularity as a place to live and to recreate, the importance of conserving natural resources cannot be overstated. In every effort to conserve the west's iconic natural resources, private landowners must play a pivotal role. However, private landowners are facing a number of threats, making it difficult to continue livelihoods based on the land. Fortunately, there are a number of tools available to landowners which can reduce the threats to their livelihood by making land more affordable, or compensating landowners for taking care of wildlife habitat, which everyone gets to enjoy. With the number of tools available to landowners, it can seem overwhelming to try and narrow down which tools may be relevant. Here, we attempt to highlight some of the tools available to which may be of broad interest to western landowners.

Generally, we attempt to highlight both long-standing and emerging tools. Some of the tools or programs we describe here have been available for decades, such as the Conservation Reserve Program and conservation easements. Other tools, such as occupancy agreements and disease compensation programs, are emerging and offer significant promise to landowners in certain situations. We hope this tool kit can help landowners consider the relevant options that might benefit them while highlighting the variety of shapes which those benefits can take.

Conservation Easements

INTRODUCTION:

A conservation easement (CE) is a means of voluntarily limiting the conversion of agricultural property to another use.[1]

IN-DEPTH:

CEs are commonplace around the West, and foundational to several of the other tools included here. Alternatively, some of the tools included here are intended to fill some of the gaps left by CEs in certain situations.

CEs are voluntary legal agreements transferring certain property rights from the landowner to a nonprofit land trust or a government agency.[2] Following the transfer of the selected rights, the landowner retains full ownership and the ability to sell, bequeath, or transfer their land in any way they see fit.[3] CEs create perpetual restrictions on the property, meaning that any landowners who inherit or purchase the land after the easement is closed will similarly be bound by the terms of the CE. This expectation is no different than any other real estate transaction for which a landowner receives compensation. For example, if a landowner sells some mineral rights and is properly paid for those mineral rights, they would not expect for their successors to be able to sell those same mineral rights.

CEs are valued using a before-and-after valuation methodology, which takes the value of the unencumbered land (the before value) minus the estimated value of the land after the easement is placed on the property (the after value). The difference in the two values is the CE value. For example, if the fair market value of the land is $3,000,000 and the estimated value after the CE closes is $2,000,000 — the CE value is $1,000,000.

Landowners generally receive either a cash payment for the CE value, a tax benefit, or a combination cash payment and tax benefit. Cash payments for CE value are rarely the full value of the CE, but landowners can deduct any remainder in value from their income taxes. For example, if a landowner's property has a CE value of $1,000,000,

1 https://www.uwyo.edu/haub/_files/_docs/ruckelshaus/open-spaces/2018-wyoming-conservation-easements.pdf
2 https://www.landtrustalliance.org/what-you-can-do/conserve-your-land/questions
3 https://mtlandreliance.org/resources/frequently-asked-questions/

and the landowner receives a cash payment for the CE, the landowner will likely receive about $750,000. The remaining $250,000 worth of CE value is donated by the landowner, who can then deduct that value from their income taxes.[4]

The NRCS is the largest funder of purchased CEs, through the Agricultural Conservation Easement Program - Agricultural Land Easements (ACEP-ALE) Program.[5] Working through the NRCS for a cash payment CE will typically take longer than a donated CE or a CE funded by other sources. If the landowner opts to donate the entire value of the CE, they may be able to deduct a majority of that value from their income taxes over several years. The rules for deducting the donation depend on whether a majority of the landowner's income is from agriculture or other sources and are specific to CE donations. Generally, properties with the highest residential development pressure will have the greatest CE value. The process for closing a CE will vary depending on the size of the encumbered land, whether the CE will be purchased or donated and the complexity of the transaction to meet the landowner's expectations.[6] CEs are largely tailorable to the desires of landowners, but the less restrictive the landowner makes the CE, the longer the transaction will take, and the more likely it is that issues related to tax deductibility may arise. Landowners around the region are largely satisfied with their decision to close a CE.[7]

When landowners work through the process of closing a CE, they can negotiate with the land trust to reduce the restrictions for certain things, referred to as reserved rights. Common reserved rights include the ability to continue agricultural operations or to maintain agricultural infrastructure without the need to notify the land trust. Other reserved rights include establishing a building envelope, inside which the landowner may construct houses and other buildings with reduced restrictions. The amount and type of reserved rights which a landowner may retain will depend on whether the CE is purchased or donated, and the land trust will be better able to help the landowner determine the degree of flexibility that makes sense for the specifics of their land. Landowners also have the ability to tailor the boundaries of the CE, to exclude areas with existing homes or areas where they may expect future development.

Landowners should be aware that after they have closed their CE, their obligations do not necessarily end. Land trusts, in order to maintain their tax exempt status and accreditation, are required to monitor the land encumbered by the CE.[8] Land trusts may use aerial monitoring or other means of monitoring, but they must monitor on-the-ground at least once every five years.[9] Landowners are not expected to be present, but must ensure that all gates are unlocked and that land trust staff has unfettered access to the entire property.

CASE STUDIES:

CEs are voluntary real estate transactions in which willing landowners are compensated for the transfer of their rights to subdivide and build on their land. CEs must be held by a qualified third-party, usually a nonprofit land trust, like the Wyoming Stock Growers Land Trust (WSGLT). In 2010, WSGLT closed a series of CEs in Sublette County, Wyoming, known as the Sommers-Grindstone Project. This series of CEs conserved about

4 http://s3.amazonaws.com/landtrustalliance.org/ConservationEasementTaxIncentiveBrochure2016.pdf
5 https://www.nrcs.usda.gov/programs-initiatives/ale-agricultural-land-easements
6 https://wsglt.org/wp-content/uploads/2022/06/Landowner-Information-Packet-_June2022.pdf
7 http://www.uwyo.edu/haub/ruckelshaus-institute/outreach/publications/_files/producer-perspectives-bryant.pdf
8 https://wsglt.org/stewardship/
9 http://s3.amazonaws.com/landtrustalliance.org/LandTrustStandardsandPractices.pdf

19,000 acres along the Path of the Pronghorn and the Red Desert to Hoback Migration corridor.[10] The project received a great deal of media and special interest attention due to the size of the project, as well as the combination of organizations that came together to pay for the CEs.[11] The landowners have been able to continue their generations-long ranching legacy, expand their operations, and incorporate the next generation of ranch owners thanks to the CEs.[12]

CEs are complicated real estate transactions. Landowners interested in CEs should begin by speaking with their attorneys and financial planners to determine if a CE is right for their operation. Then, landowners can reach out to their local NRCS office and land trust to find out more about the process.

OPPORTUNITIES AND LIMITATIONS:

Opportunities:

- Long-term protection with potential for a large payment to the landowner
- Known processes and existing funding sources for perpetual easements
- Potential to expand funding through existing programs

Limitations:

- No funding for targeted or term easements
- Limited funding available
- Limited land trust capacity to complete easements
- Some landowners are not willing to enter into a permanent agreement

10 https://wsglt.org/extensive-wyoming-land-conservation-project-conserves-nearly-19000-acres-2/
11 https://www.uwyo.edu/haub/_files/_docs/ruckelshaus/open-spaces/2018-wyoming-conservation-easements.pdf
12 https://www.arcgis.com/apps/Cascade/index.html?appid=631c857bcad441cd9312dca9fb8be78a

Habitat Lease

INTRODUCTION:

A habitat lease is a short-term agreement (e.g., <1-30 years) where the landowner leases a portion of their property to a third party to benefit wildlife habitat.[13]

IN-DEPTH:

Managers may implement habitat leases in areas important to wildlife, such as migration corridors. The agreement allows a third party to lease the agricultural or other rights to certain portions of deeded or leased land to maintain that land for the benefit of habitat. A typical lease term may require a reduction of livestock grazing by 25-100%. Reductions in grazing will vary depending on the season, with some leases allowing for no reduction in grazing, so long as certain forage characteristics are maintained. There will likely be requirements for remaining forage following grazing or haying activity in the typical lease. Occasionally, leases will also require the implementation of additional practices such as fencing that allows for wildlife movement, weed management, or others. The leases are typically short-term (e.g., several weeks up to-30 years), with options to renew. By making the lease shorter-term, the party leasing the rights will better monitor progress and ensure term adherence. Many landowners appreciate the additional income stream they can generate from leasing their habitat, and wildlife managers can see a direct impact on wildlife habitat and populations. Though this report separates them, the first three tools described—Habitat Leases, Grasslands Conservation Reserve Program, and Occupancy Agreements–are all types of habitat leases tailored for specific contexts.

CASE STUDIES:

Habitat leases are an emerging voluntary way for a landowner to receive compensation for wildlife use of their agricultural property. An example of habitat leasing comes from Montana Fish Wildlife and Parks (FWP).[14]

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13 https://westernlandowners.org/policy/habitat-lease/
14 Personal Communication with Debbie Hohler, Montana Fish, Wildlife and Parks Upland Game Bird Enhancement Program Coordinator.

Through the Upland Game Bird Enhancement Program, FWP has several means of leasing private lands for the benefit of upland game bird habitat. The FWP program offers a variety of lease options, which vary depending on the circumstances of the land and the landowner's management goals. The goal of FWP's leasing program is to lease and enhance habitat for game species, primarily upland birds. Leases may partially or completely limit grazing in the leased area, and usually limit alteration of natural habitat. Some of the leases require active management, including weed mitigation. All leases require some degree of recreational access to the leased area.The leases are on a term of between one and 30 years. The most common terms are between three and five years. The payments vary depending on the habitat conserved by the lease and the lease program. Payments can vary from $5 per acre per year to $30 per acre per year. Several of the programs also offer a cost-share for habitat improvement or fencing projects to help maintain the integrity of the leased habitat. The FWP leasing programs are partially state-funded, with occasional federal money and a user-pay structure funded by hunting licenses.

The U.S. Fish and Wildlife Service, Wyoming Game and Fish Department, and other partners piloted a habitat leasing program in western Wyoming from 2012 to 2017.[15] The lease benefited mule deer winter range and Greater Sage-Grouse core area. The lease compensated the landowner for reducing cattle grazing (i.e., a reduction in Animal Unit Months or AUMs) in mule deer winter range. After the first year, the lessee and landowner found that shifting the timing of grazing was more important than reducing AUMs. When the landowner grazed later, to better coincide with the ecology of the area, they could run approximately the same AUMs while still achieving the conservation goals of the lease. The landowner also reduced haying in the leased area to increase winter forage and increase cover for Greater Sage-Grouse. To further improve mule deer habitat, the landowner managed weeds and planted additional cover. The Wyoming habitat lease was funded with federal, state, and private money.

Landowners can contact their local game and fish offices, extension offices, or conservation districts for more information on habitat leasing programs in their area. The tool is still relatively new, but those offices are likely to be aware of any pilots.

OPPORTUNITIES AND LIMITATIONS:

Opportunities:

- Shorter-term land protection than conservation easements
- Can shift as habitat shifts
- May provide payments for management with direct benefits to wildlife
- Provides landowner flexibility

Limitations:

- Limited trials
- Inconsistent funding
- Short-term leases may result in difficult management decisions for landowners
- Challenge in monitoring adherence to lease terms and evaluating benefits to wildlife

15 Personal Communication with Wes Sibert, rancher in western Wyoming.

Grassland Conservation Reserve Program

INTRODUCTION:

The Grassland Conservation Reserve Program (GCRP) is an iteration of the well-known Conservation Reserve Program (CRP), focused on conserving working grasslands habitats.[16]

IN-DEPTH:

GCRP is funded by the U.S. Department of Agriculture and administered by the Farm Service Agency (FSA).[17] GCRP is a program that leases agricultural land for 10 or 15 years to provide conservation benefits to grassland ecosystems. The program's stated purpose is to protect grasslands, rangelands, and other grazing lands while maintaining grazing use. Generally, enrolled landowners may still graze, hay, and mow enrolled lands. Landowners are required to work with the Natural Resource Conservation Service (NRCS) or an approved service provider to create a conservation plan to aid in the management of the leased land.[18] Additionally, landowners may receive cost share assistance for the implementation of certain practices.

The program places the most significant restrictions on the conversion of grasslands to alternative uses such as annual crops or residential or commercial development. Grassland CRP payments are based on county grazing land lease rates, as determined in the annual survey of agriculture.[19] The minimum lease rate is $13/acre. Landowners will receive a maximum payment of 75% of the county average lease rate.[20] FSA has prioritized two areas, which will receive a higher ranking. These include the Greater Yellowstone Ecosystem (northwestern Wyoming, southwestern Montana, and east-central Idaho) and the Dust Bowl zone (eastern Colorado, western Nebraska, eastern New Mexico, and the Texas and Oklahoma panhandles).[21] The program will focus on lands in the priority

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16 https://www.fsa.usda.gov/news-room/news-releases/2021/usda-announces-dates-for-conservation-reserve-program-general-and-grasslands-signups
17 https://www.fsa.usda.gov/programs-and-services/conservation-programs/crp-grasslands/index
18 https://www.fsa.usda.gov/Assets/USDA-FSA-Public/usdafiles/FactSheets/grassland_crp_working_lands-fact-sheet04-01-22.pdf
19 The FSA relies on data from the National Agricultural Statistics Service Survey to determine the cash rental rate per county. The lease rate is based on responses from landowners within the county. https://www.nass.usda.gov/Surveys/Guide_to_NASS_Surveys/Cash_Rents_by_County/index.php
20 For example, if the county average lease rate to lease grazing land is $20/acre, landowners enrolled in GCRP can receive a maximum of $15/acre.
21 https://www.fsa.usda.gov/Assets/USDA-FSA-Public/usdafiles/Conservation/PDF/F5cGrasslandNationalPriorityZoneMap-1.pdf

zones, lands with expiring CRP contracts, lands with the highest threat of conversion, lands with a diversity of plant species, and landowners willing to lease for less than their eligible maximum lease rate. This conservation tool is federally-funded through the Farm Bill.

In October, 2022, the USDA and the state of Wyoming formalized an agreement to increase landowner access to several USDA programs, including GCRP.[22] The agreement intends to leverage USDA and state of Wyoming programs to help conserve big game habitat on private lands. Target areas for the program include the eastern front of the Absaroka range, the Red Desert to Hoback Migration Corridor, the Baggs Migration Corridor and the Platte Valley Migration Corridor.[23] Some of the funding committed by the USDA through the agreement is going to come from the Environmental Quality Incentives Program (EQIP), and the Agricultural Conservation Easement Program (ACEP), with the remainder coming from GCRP.[24] The agreement intends to support Wyoming's working lands and the wildlife habitat they support.

For more information and to begin enrollment, landowners can reach out to their local USDA Service Center (https://www.farmers.gov/working-with-us/service-center-locator). Landowners can get an idea of how competitive their land will be for enrollment in GCRP by reviewing the annual ranking factors.[25] The GCRP enrollment period through the USDA/Wyoming partnership pilot will open in January, 2023.[26]

CASE STUDIES:

GCRP builds off the well-known CRP to compensate landowners for maintaining their agricultural land as open space and avoid converting it to uses like residence or row crops. 2021 was the initial year of the GCRP. As of December, 2022, there are no case studies available.[27]

OPPORTUNITIES AND LIMITATIONS:

Opportunities:

- Offers a consistent funding source for habitat leasing
- Builds off the well-established and recognized CRP
- Shorter-term than conservation easements
- Direct payments to landowners for habitat benefits

Limitations:

- Short-term payments may result in difficult management decisions for landowners
- Unknown enrollment cutoffs

22 https://www.usda.gov/media/press-releases/2022/10/17/usda-formalizes-big-game-conservation-partnership-state-wyoming
23 https://www.nrcs.usda.gov/programs-initiatives/working-lands-for-wildlife/usda-wyoming-big-game-partnership-pilot
24 https://www.nrcs.usda.gov/sites/default/files/2022-11/USDA-Wyoming-Factsheet.pdf
25 https://www.fsa.usda.gov/Assets/USDA-FSA-Public/usdafiles/FactSheets/202106_fsa_crp_grasslands_203_ranking_factors_3.pdf
26 https://www.nrcs.usda.gov/programs-initiatives/working-lands-for-wildlife/usda-wyoming-big-game-partnership-pilot
27 https://www.fsa.usda.gov/programs-and-services/conservation-programs/crp-grasslands/index

Occupancy Agreements

INTRODUCTION:

An occupancy agreement ("OA") is a voluntary agreement where a private third party agrees to pay a landowner to remove livestock from where there may be a potential conflict with wildlife.[28]

IN-DEPTH:

OAs are a subset of habitat leases because the removal of livestock from habitat is the crux of the agreement. An OA is a way to compensate landowners in or near high-use wildlife areas such as feedgrounds or migration corridors. In an OA, a private third party agrees to lease, from a willing landowner, some high-quality habitat to the complete exclusion of livestock or agricultural operations. These agreements may be on an annual basis or for several years at a time. The landowner is compensated for removing or excluding livestock, often seasonally during periods of wildlife/livestock interaction, from the leased area. Some leases may also include provisions such as removing or modifying infrastructure. Ultimately, the intent of OA's is to separate wildlife and livestock to reduce conflicts such as disease transfer (e.g., brucellosis), competition for forage, and damage to infrastructure like livestock fences.

CASE STUDIES:

OAs are an emerging means of preventing livestock-wildlife conflicts by compensating willing landowners for wildlife use or occupancy of portions of their land. In Montana's Paradise Valley, where livestock-elk conflicts have become commonplace, stakeholders are piloting an OA which attempts to limit the growing conflicts. The OA is co-held by the Property and Environment Research Center (PERC) and the Greater Yellowstone Coalition (GYC). The OA compensates the landowner for building a fence, which separates livestock from an area of the ranch that elk use as winter range. The co-holders compensate the landowner for the loss in forage through a habitat lease on the elk winter range. By excluding cattle from the elk's winter range, there is a reduced risk of brucellosis transfer and fewer conflicts between the two uses. The separation also encourages more forage for the wintering elk, which

28 https://www.perc.org/elk-occupancy-agreements/

will likely result in reduced conflicts with neighboring landowners. This OA further requires the landowner to conduct habitat improvement projects in the elk winter range area to maintain and improve forage for the elk. The OA allows the landowner to graze the exclusion area if necessary to reduce fire hazards or avoid economic hardship. The landowner must work with the partner organizations to determine when grazing would be allowed. Stakeholders anticipate that the OA will result in fewer livestock/elk conflicts in the elk's winter range, fewer livestock/elk conflicts on neighboring properties, and improved winter forage for elk. This conservation tool is privately funded.

For more information on occupancy agreements, landowners can reach out to PERC or the GYC. Local conservation districts or game and fish offices may also be able to offer additional information.

OPPORTUNITIES AND LIMITATIONS:

Opportunities:

- Compensates landowners for reducing wildlife conflicts
- Protects high-use wildlife areas
- More flexibility than a conservation easement
- No government involvement

Limitations:

- Inconsistent funding sources
- Short-term payments may result in challenging management decisions for landowners
- May create issues with neighbors if wildlife spill onto adjacent lands

Disease Bond / Insurance / Compensation Fund

INTRODUCTION:

A disease bond, insurance program, or compensation fund shifts the risk of financial loss from an individual agricultural producer to another party or group who may better bear the risk of loss.

IN-DEPTH:

A disease insurance policy would function like many other insurance policies. Once the rancher incurs expenses related to disease transmission, the payor would reimburse the producer for all or a portion of those losses.[29] Payments could include the cost of losses resulting from slaughtering the infected herd or feeding the infected herd during the quarantine period. Insurance payments tend to be appropriate when the risk to the policyholder is unknown.

On the other hand, a bond would make a third party liable for any debts incurred by the landowner if losses from disease transmission were to occur. In the case of a bond, third parties fund a collateral account. If there are no financial impacts from disease transmission, the landowners pay the investors some percentage of the overall investment, and the investors receive any interest earned from the collateral account. If, however, there is a disease claim, the exposed landowner would withdraw funds from the collateral account to cover their expenses. Bonds tend to be more effective when bondholders' risks are better known. Insurance and bond programs are funded privately or through a user-pay model.

CASE STUDIES:

Disease bonds or insurance/compensation programs are an emerging way to reduce some of the financial risks of wildlife-livestock conflicts on individual landowners. Brucellosis is a disease that is transmissible from elk to

29 Ben Foster, A Financial Risk-Transfer Tool for Managing the Costs of Brucellosis to Cattle Ranchers, PERC White Paper (Feb. 11, 2020).

cattle.[30] The disease affects the reproductive viability of domesticated cattle and can potentially harm humans. Brucellosis is an issue in the Greater Yellowstone Ecosystem, where cattle and elk are often in close quarters. If any of a rancher's cattle test positive for brucellosis the rancher has two options, quarantine their entire herd or slaughter all of their animals. Neither option is desirable, as quarantining a 400-head herd can cost approximately $150,000, and rebuilding a herd from nothing can take years and significant investment. Though states and federal agencies may cover some of the costs associated with brucellosis exposure, landowners retain the largest financial risk for an exposure.

In 2020, PERC published a conceptual white paper on the use of disease bonds or insurance programs in the context of compensating landowners for brucellosis transfer. The paper proposes five potential contract structures for the bond/insurance programs, including third-party participant, indemnity insurance, bond, contingent loan, and mutual insurance.

One option for transferring or spreading the financial risk of brucellosis exposure is through a third-party participant structure. The third-party participant structure results when the third party helps pay for all or part of an insurance premium that benefits landowners. PERC anticipates the third party would likely be an interested conservation organization. The third-party participant structure would result in a typical insurance policy arrangement, where once the landowner incurs costs associated with a disease exposure, they are reimbursed by the insurance policy for some of their expenses. Another form discussed in the white paper is specific risk-transfer structures, or contracts that can compensate landowners for losses. Again, these agreements are structured like insurance policies, but are designed specifically for the risks of brucellosis transfer.

Second is a bond program in which conservation organizations or other investors contribute to a collateral account. Investors receive interest earned by the collateral account, in addition to payments from landowners who benefit from the account. If landowners have a brucellosis exposure, they can access the account.

Another type of specific risk-transfer structure is a contingent loan, where a rancher would only receive a loan from a lender if they have a brucellosis exposure. The contingent loan requires landowners to work with lenders in advance to ensure they qualify for the loan. The landowner would then pay back the loan with interest after the quarantine period, or they could pay an annual premium until the loan is needed.

Finally, is the mutual insurance model, where all affected ranchers contribute to a fund, similar to a co-op, then withdraw as needed following a brucellosis exposure. The co-op model disperses the costs of a brucellosis exposure across many landowners in an area. For more information, refer to PERC's white paper (Ben Foster, *A Financial Risk-Transfer Tool for Managing the Costs of Brucellosis to Cattle Ranchers*, PERC White Paper (Feb. 11, 2020)).

Overall, the insurance and bond programs aim to reduce the financial risk to livestock producers due to brucellosis exposure from elk. Similar risk transfer mechanisms may be relevant to addressing other conflicts with wildlife, including avian influenza.[31]

In December 2022, PERC announced the first privately-funded brucellosis compensation fund of this nature, which will be operational in early 2023.[32] The compensation fund will provide landowners in the Paradise Valley

30 Ben Foster, A Financial Risk-Transfer Tool for Managing the Costs of Brucellosis to Cattle Ranchers, PERC White Paper (Feb. 11, 2020).
31 https://www.aphis.usda.gov/animal_health/animal_diseases/avian/downloads/vsg-8603.2-procedures-claims-h5h7-lpai-poultry.pdf
32 https://www.perc.org/2022/12/08/perc-launches-brucellosis-compensation-fund-with-partners-to-support-ranchers-who-provide-elk-habitat/

with 50-75% reimbursement for quarantine related costs if their herd is exposed to brucellosis. PERC intends to limit payback to 50-75% to encourage landowners to continue to take steps to avoid brucellosis transfer events. No one payout can be more than 50% of the overall fund, which is currently $150,000.

Landowners can reach out to PERC or GYC to learn more about disease bond or compensation tools. Local game and fish offices may also be able to offer information on disease risk transfer programs.

OPPORTUNITIES AND LIMITATIONS:

Opportunities:

- Reduces financial risks associated with livestock exposure to disease such as brucellosis
- Proven model in other agricultural settings
- May reduce livestock/wildlife conflicts

Limitations:

- Unknown or inconsistent funding sources if not user-pay
- Challenging to determine the payment rate and eligibility of landowners
- Moral hazards are present with any insurance program

Buy-Protect-Sell

INTRODUCTION:

A buy-protect-sell agreement ("BPS") is a voluntary agreement that allows a willing land trust or conservation organization to purchase land from a willing seller, encumber it with a conservation easement, and then resell it to a willing buyer.[33]

IN-DEPTH:

A BPS allows a land trust, which is not typically in the business of buying or owning land, to purchase a property threatened with conversion. BPS arrangements occur when a willing seller agrees to sell to a willing conservation organization buyer with the understanding that the buyer will conserve the land and convey the land to a future private owner. Often, these lands are sold at full market value, unless the buyer and seller voluntarily negotiate otherwise. BPS arrangements might be beneficial for landowners considering selling their land for full market value, but who want to ensure that the land is conserved or remains in agricultural production. The purchaser of the land in these types of situations may be called a "conservation buyer" and several groups, like The Nature Conservancy cater to these buyers.[34] Once the land trust purchases the property, they have several years to sell a conservation easement, protecting the property in perpetuity. Then the land trust can sell the encumbered property to a targeted buyer, such as a young or beginning producer, at a reduced value because of the conservation easement.[35]

CASE STUDIES:

Buy-protect-sell arrangements are a voluntary tool which allow land trusts to move quickly to purchase at risk land from willing sellers, then conserve it and re-sell it to a willing buyer, often for the benefit of young or beginning agricultural producers. In New England, land trusts commonly use voluntary BPS arrangements to prevent the

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33 https://www.youngfarmers.org/wp-content/uploads/2014/06/AgEasements_Final.pdf
34 https://www.nature.org/en-us/about-us/who-we-are/how-we-work/private-lands-conservation/?tab_q=tab_container-tab_element_1017571007#link01
35 https://farmlandinfo.org/media/buy-protect-sell-webinar-series/

conversion of prime agricultural land to alternative uses.[36] The Maine Farmland Trust ("MFT") uses the BPS arrangement to buy agricultural land from willing sellers, as land that is likely to be developed comes for sale.[37] The MFT maintains a website that allows concerned constituents to notify MFT of any at-risk farmland that comes available for sale. MFT can then use donations, loans, and private investments to purchase the farmland at market value from willing sellers. Given the cost-prohibitive nature of purchasing properties outright, MFT attempts to work with landowners to explore the possibility of a discounted sale. Once the property is protected with a conservation easement, MFT lists it for sale on several websites which cater to young or beginning farmers. MFT tries to keep the sale price for the property as close to agricultural value as possible. Despite this, MFT occasionally may have to raise additional unrestricted philanthropic money to cover losses on the sale or debt service costs from financing during the period the property is held.

The Washington Farmland Trust has a tool that is similar to BPS arrangements.[38] They call it the "simultaneous sale agreement." The simultaneous sale agreement allows the land trust to close an easement on a property at the same time it is transferred to a new willing owner, reducing the price and encouraging young or beginning producers to purchase agricultural land. These BPS agreements are voluntary and privately funded through easement donations or investments in land trusts. They may also be state or federally-funded if the government easement program allows for BPS agreements.

In the 2018 Farm Bill, the NRCS allowed cooperating agencies to use voluntary BPS arrangements to purchase a conservation easement with funds from the Agricultural Conservation Easement Program (ACEP).[39] The rule allows land trusts two paths when entering a BPS, the land trust may sell the land before or upon closing the conservation easement, or the land trust may hold the land for no more than three years after the easement closes.[40] If the land trust holds the land for some time, it may recover reasonable holding costs. No examples of BPS arrangements with ACEP funds are readily available.

For more information on BPS arrangements, landowners can reach out to their local NRCS office (https://www.nrcs.usda.gov/contact/find-a-service-center) or their local land trust (https://landtrustalliance.org/land-trusts).

OPPORTUNITIES/LIMITATIONS:

Opportunities

- Way to act quickly to protect threatened properties
- My return the property to an underserved buyer and/or new producer
- Approved in the Farm Bill (although current challenges with implementation)

Limitations

- Requires a significant upfront investment
- Land trusts will need clear guidance on how to select and manage eligible properties
- Need to find a buyer within the limits of the holding period

36 https://www.mainefarmlandtrust.org/farmland-protection-new/buyprotectsell/
37 https://www.landtrustalliance.org/news/beyond-agricultural-conservation-easements-ensuring-future-agricultural-production
38 https://wafarmlandtrust.org/our-work/conservation/
39 https://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=46604.wba
40 https://www.federalregister.gov/d/2021-02268/p-67

Option to Purchase at Agricultural Value

INTRODUCTION:

An option to purchase at agricultural value (OPAV) gives the buyer of a property the right to purchase the land at a discounted rate tied to the agricultural production value of the land.[41]

IN-DEPTH:

An OPAV gives a property buyer an option to purchase the property at a discount, which in some cases can be substantial.[42] A qualified appraiser will appraise the property, who will determine what the property can generate if used for agricultural production. The property buyer must be confirmed by the grantor of the option to be a qualified agricultural producer.

CASE STUDIES:

OPAVs are a tool to provide land access to young or beginning agricultural producers. In New England, OPAVs have been coupled with a BPS arrangement so that when the land trust sells the land to the producer, they have an assurance that the purchaser will not "flip" the land.[43] However, OPAVs may also be implemented separately from BPS arrangements. In Vermont, some conservation easements include an OPAV, enabling the land trust a first right of refusal to purchase the property from the landowner.[44] The Vermont OPAVs are triggered when a farm property is contracted to be sold, and the buyer is determined not to be an agricultural producer. OPAVs are perpetual and run with the land, in conjunction with the conservation easement. OPAV agreements are privately funded through easement donations or investments in land trusts. They may also be state or federally-funded if the government easement program allows OPAVs, like the Massachusetts Agricultural Preservation Restriction Program.[45]

41 https://landforgood.org/wp-content/uploads/LFG-Does-The-Option-At-Agricultural-Value.pdf
42 https://www.youngfarmers.org/wp-content/uploads/2013/05/Conservation2.01.pdf
43 https://www.mainefarmlandtrust.org/farmland-protection-new/agricultural-easements/
44 https://landforgood.org/wp-content/uploads/Selling-an-OPAV-Farm.pdf
45 https://www.mass.gov/doc/apr-program-guide-0/download

Landowners can reach out to their local land trust for more information on OPAVs (https://landtrustalliance.org/land-trusts).

OPPORTUNITIES AND LIMITATIONS:

Opportunities:

- Provides opportunities to young/beginning producers
- Tool to maintain agricultural nature of developing regions
- Encourages agricultural or conservation-minded buyers

Limitations:

- No known funders
- Likely quite expensive
- Developing a process for identifying qualified buyers

Grassbanking

INTRODUCTION:

Grassbanking is a process where a participating landowner may use forage on another property in exchange for conservation benefits on their property in the area.[46]

IN-DEPTH:

The process starts by establishing land as a "bank," which is not consistently grazed. The bank operators manage the bank for forage production. Then, if landowners in the area implement certain conservation practices on their property, they may be eligible to make up for any lost grazing by "withdrawing" grass from the bank. Only withdrawing from the bank when needed allows both properties an adequate amount of rest while encouraging innovative conservation and grazing practices.

CASE STUDIES:

Grassbanking offers landowners a supplemental land base, which may allow them to implement additional conservation practices on their current land. The first grassbank, started by the Malpai Borderlands Group, is located in New Mexico and Arizona. The rancher-led group purchased a 300,000 acre Gray Ranch to act as the bank. Then, if participating landowners closed a conservation easement on their land, they were eligible to graze on the Gray Ranch during droughts. This grassbank is funded with a user-pay model.

The Nature Conservancy (TNC) has also established a grassbank on the Matador Ranch in Montana. During a period of drought, TNC allowed neighboring landowners to graze on the ranch if the landowners implemented conservation practices on their land. Landowners involved in the bank are allowed to graze at a reduced rate (about half of the statewide lease rate). Since 2002, TNC has expanded participation in the bank. Participating landowners have implemented a range of conservation practices including granting conservation easements, repairing or

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46 Carrigan, C., D. Bennett, and L. Pejchar. (2018). Tools for conservation on private lands. Colorado State University, Fort Collins, CO.

removing fences, and controlling weeds. The Matador Ranch grassbank now serves 220,000 acres of surrounding ranches. The Matador Ranch offers an example of how scalable an effective grassbank can be. This grassbank was privately funded by TNC, with a user-pay model from landowner leases.

Landowners may reach out to TNC for more information on grassbanking (https://www.nature.org/en-us/get-involved/how-to-help/places-we-protect/matador-ranch/). Local conservation districts may also be aware of nearby grassbanking efforts.

OPPORTUNITIES AND LIMITATIONS:

Opportunities

- Allows continued agricultural uses, without overusing
- Opportunity for landowners to justify experimenting with conservation practices
- Conservation practices scaled to a larger landscape beyond the "bank" property

Limitations

- May be cost-prohibitive
- May restrict uses on participating landowner properties
- Challenges in estimating exchange value of conservation practices for forage
- Process of selecting eligible landowners

Conservation Developments

INTRODUCTION:

Conservation developments are a way to allow for residential development while maintaining open space.[47]

IN-DEPTH:

Conservation developments are a flexible option for land developers. Conservation developments allow developers to subdivide and build in a previously undeveloped area, as long as they maintain open space in the development. The lots are generally smaller and more clustered in a conservation development than in typical developments. Municipalities with control over zoning and development regulations usually favor conservation developments.[48] Therefore, developers may bypass some other zoning regulations regarding lot size, setback requirements, or density. Municipalities also favor conservation developments because the reduction of sprawl between houses reduces costs for services such as water, sewer, and road maintenance.

CASE STUDIES:

Conservation developments are one option that some municipalities use to encourage more open space and reduce the impacts of residential development. The Prairie Crossing subdivision in Illinois is an example of a conservation development from the 1970s.[20] A property consisting of 675 acres was slated to have 1,600 residences built on it. A new developer purchased the property and changed the plan to build 359 residences while maintaining 100 acres as an organic farm. The development used the native prairie to mitigate flood risks and maintain water quality in the nearby lake. Further, homes in the area have seen a significant increase in value compared to surrounding areas.

Peterborough, New Hampshire, has a conservation development requirement in its zoning code.[21] In Peterborough,

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47 Carrigan, C., D. Bennett, and L. Pejchar. (2018). Tools for conservation on private lands. Colorado State University, Fort Collins, CO.

48 John R. Nolon and Patricia E. Salkin. (2017). Land Use Law in a Nutshell. 2nd Edition. West Academic Publishing.

developers do not receive an exception to build more densely in the conservation development than would otherwise be allowed. For example, if a residential zone only allowed for 1 house per acre, the developer could not build more than 10 houses in a 10 acre area by building the houses in a conservation development. However, the town requires that 30% of any development remains open space. The developer must deed the open space to a neighborhood association, the town, or a conservation organization. Homeowners who purchase homes in conservation developments fund the conservation of the open space, making these a user-pay funding model.

Landowners can speak to their local city and county planning and zoning boards for information on conservation developments.

OPPORTUNITIES AND LIMITATIONS:

Opportunities:

- Some counties and cities may favor this type of development
- Reduces conflicts between growth and conservation
- Scalable

Limitations:

- In some areas, developers have no obligation to build conservation developments
- Homebuyers might prefer to have their own “ranchette”
- May be limited by state law
- More complex projects than traditional rural residential subdivisions

Other tools

Carbon Offsets

INTRODUCTION:

Carbon offset projects compensate landowners who reduce emissions or sequester carbon through practices on their land.[49]

IN-DEPTH:

Carbon offset (or credit) projects are divided broadly into two categories, projects that increase carbon sequestration and projects that reduce or avoid emissions.[50] Projects that increase carbon sequestration are most frequently seen in a forest context, where silvicultural practices can result in the trees absorbing an increased amount of carbon.[51] Projects that reduce or avoid emissions are the most relevant to a rangeland context.[52] In rangelands, avoided emissions projects compensate landowners for the carbon maintained in the soil by not removing land from grazing use. Landowners are expected to close a conservation easement or enter a similar long-term protection of the land. To be eligible for an avoided emission project, landowners often have to prove that their land is at risk of conversion to an alternative use. Payment for carbon offsets primarily comes from companies attempting to reach carbon-neutral goals.[53]

Currently, payments from carbon offset projects are still relatively low compared to the costs of developing a project. However, landowners and land trusts can work together and with other partners to aggregate or bundle credits to create economies of scale, which may make some projects more feasible than before.[54]

Landowners interested in carbon offset projects can reach out to their local land trust for more information. The carbon market is still sparsely available across the West, but may become more easily available in coming years.

49 https://www.conservationfinancenetwork.org/2020/07/24/new-forest-carbon-offset-strategies-turn-to-small-landowners-for-big-impact
50 https://americancarbonregistry.org/carbon-accounting/standards-methodologies/methodology-for-avoided-conversion-of-grasslands-and-shrub-lands-to-crop-production
51 https://www.fs.fed.us/pnw/pubs/pnw_gtr801.pdf
52 https://www.landtrustalliance.org/topics/climate-change/carbon-offset-pilot-program/avoided-grassland-conversion-carbon-offset-pilot
53 https://www.ecosystemmarketplace.com/publications/state-of-the-voluntary-carbon-markets-2021/
54 https://pubag.nal.usda.gov/catalog/7768079

OPPORTUNITIES AND LIMITATIONS:

Opportunities:

- Compensation for landowners
- Maintains grazing uses of land

Limitations:

- Expensive to implement
- Uncertain market and prices
- Complicated to navigate rules and processes
- Generally requires long-term restrictions on certain uses of the land

Cost Shares

INTRODUCTION:

Cost shares are programs that encourage landowners to implement conservation practices, then split the costs of the practices, often with the NRCS or other federal agencies.

IN-DEPTH:

Cost-share programs are usually targeted to one or a few conservation practices, such as wildlife-friendly fencing, water development, or habitat improvement projects. In cost-share programs, eligible landowners may recover some of their costs from implementing eligible practices. Some cost-share programs are government-sponsored, and private organizations fund others. The NRCS has several cost-share programs for a variety of conservation practices. An example of a cost-share program is NRCS's Environmental Quality Incentives Program (EQIP).[55] EQIP provides landowners with some financial assistance to implement practices to conserve land or water or enhance wildlife habitat. Recently, EQIP has begun to focus efforts on practices that mitigate the impacts of climate change.[56] EQIP will cost share with landowners to implement water management practices, enhanced feed management, and other practices which might have climate mitigation benefits.[57] EQIP may also cover up to 75% of the cost of replacing fences with wildlife friendly fencing, which creates significant time savings as well as benefits for wildlife.[58]

The U.S. Fish and Wildlife Service also provides a cost-share program through the Partners for Fish and Wildlife Program.[59] The Partners program provides technical and financial assistance to landowners who are interested in voluntary working to improve wildlife habitat conditions on their property. States, counties, and conservation

55 https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/eqip/
56 https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/eqip/
57 https://www.usda.gov/media/press-releases/2022/01/10/usda-offers-expanded-conservation-program-opportunities-support
58 https://www.thefencepost.com/news/saving-time-money-and-wildlife-through-conservation-practices/?utm_campaign=2022-12-15+YW&utm_medium=email&utm_source=Pew&subscriberkey=0030e00002W6xlKAAR
59 https://www.fws.gov/program/partners-fish-and-wildlife

districts may also have cost-share programs for practices of local significance.[60]

Landowners can reach out to their local NRCS, conservation district, or game and fish offices for more information on federal and state cost share programs.

OPPORTUNITIES AND LIMITATIONS:

Opportunities:

- Compensation for landowners
- Direct benefits to habitat

Limitations:

- Limited or sporadic opportunities
- The landowner shares project costs

Marketing Options

INTRODUCTION:

If eligible ranchers implement certain conservation practices, they may market their agricultural products for a premium through a brand developed and promoted by a conservation organization.

IN-DEPTH:

Marketing programs allow ranchers to make extra revenue on their agricultural products. If ranchers implement certain practices (e.g., implement rotational grazing systems), they may be eligible to sell their product for a premium. One example of this type of program is the Audubon Conservation Ranching program.[61] Through the Audubon program, if a rancher beneficially manages their operation for birds, they may market their beef as "Audubon Certified Bird Friendly." This marketing designation may allow the producer to sell their product for a premium in one of Audubon's partner retailers.[62] These programs do not directly compensate landowners but allow them to sell their products for a premium, covering costs of implementing conservation practices on their land.

For more information, landowners can reach out to local livestock trade groups, such as the Wyoming Stock Growers Association, or to other groups interests in marketing programs, like the Audubon Society.

OPPORTUNITIES AND LIMITATIONS:

60 http://www.uwyo.edu/haub/ruckelshaus-institute/private-lands-stewardship/resources-land-owners.html
61 https://www.audubon.org/conservation/ranching
62 https://www.audubon.org/conservation/where-to-buy-conservation-ranching-products

Opportunities:

- Market-based solution
- Encourages consumer participation
- More direct impact on producer's bottom line

Limitations:

- Market fluctuations may limit the premium earned
- Limited market opportunities
- Effort required to develop partnerships and markets
- May take some time to realize profits

Green Infrastructure

INTRODUCTION:

Green infrastructure uses existing natural features such as water filtration or flood mitigation to provide a public benefit that would otherwise require traditional infrastructure to meet.[63]

IN-DEPTH:

Generally, cities implement green infrastructure measures, such as additional trees planted in a park, or green roofs, within the city.[64] In New York City, the city implemented a massive green infrastructure project to filter the city's drinking water.[65] The city conserved or purchased thousands of acres of primarily forested or natural land in the Catskill Mountains and Hudson River Valley. The maintenance of the land in its natural state filters the city's drinking water, which is then sent to the city.

Landowners can reach out to cities or counties for more information on green infrastructure options in their area.

OPPORTUNITIES AND LIMITATIONS:

Opportunities:

- May receive funding from the recent federal infrastructure bill
- Needed for many cities in the rapidly growing West
- Scalable

Limitations:

- Expensive

63 https://www.epa.gov/green-infrastructure/what-green-infrastructure
64 https://www.nrdc.org/stories/green-infrastructure-how-manage-water-sustainable-way
65 https://news.climate.columbia.edu/2011/07/29/maintaining-the-superiority-of-nyc%E2%80%99s-drinking-water/

- Upfront funders need to be identified
- Potential restrictions to agriculture need to be identified

Depredation payment

INTRODUCTION:

Depredation payments compensate agricultural producers for confirmed livestock losses to predators.

IN-DEPTH:

Depredation payments are different from payments for presence because depredation payments require confirmation of livestock losses to covered predators.[66] Some states even include a multiplier, assuming that other animals have been killed but not recovered. For example, Wyoming offers a multiplier for wolf damage. Livestock producers receive a multiplier of 7 times for confirmed wolf damage to sheep and calves.[67]

Landowners can reach out to their local game and fish offices or the U.S. Fish and Wildlife Service for more information. Local NRCS offices may also have information on depredation payment programs.

OPPORTUNITIES AND LIMITATIONS:

Opportunities:

- Helps address financial impact from wildlife-livestock conflict
- May benefit landowners for non-confirmed depredations

Limitations:

- Only benefits those landowners with confirmed depredations
- Availability specific to certain states and regions

66 https://westernlandowners.org/wp-content/uploads/2020/05/Review-of-livestock-compensation-programs-052620.pdf
67 https://wgfd.wyo.gov/Regulations/Regulation-PDFs/REGULATIONS_CH28.pdf

Payments for presence

INTRODUCTION:

Payments for presence programs compensate landowners with consistent conflicts with predators.

IN-DEPTH:

In these payments for presence programs, landowners are compensated based on the presence and prevalence of certain predators rather than on confirmed kills or damage.[68] These payments focus on the indirect losses that result from predator presence amongst livestock, including lost weight and lowered reproduction.

CASE STUDIES:

Colorado Parks and Wildlife has implemented a payment for presence program to compensate landowners for damages as a result of the wolf reintroduction in that state.[69] Colorado landowners must meet specified requirements and take steps to avoid predations before they are eligible for the payment.[70]

Additionally, a pay for presence program has been used to compensate landowners in New Mexico and Arizona for the presence of wolves.[71] This program compensates landowners based on a formula which accounts for the amount of overlap between the wolves' range and the livestock producer's operation, as well as the number of wolves present in the area in a given year.

For more information, landowners can reach out to their local game and fish offices or the U.S. Fish and Wildlife Service.

OPPORTUNITIES AND LIMITATIONS:

Opportunities:

- May offer a reduced-cost way to compensate landowners for livestock losses
- Helps address wildlife-human conflict

Limitations:

- Unknown funders
- Limited case studies
- Limited to only those landowners who meet the threshold number of predators

68 https://www.researchgate.net/publication/339923088_Paying_for_the_Presence_of_Predators_An_Evolving_Approach_to_Compensating_Ranchers
69 https://cpw.state.co.us/Documents/Wolves/DRAFT-CO-Wolf-Plan.pdf
70 https://cpw.state.co.us/aboutus/Pages/GameDamage.aspx
71 https://www.fs.usda.gov/detail/gila/news-events/?cid=FSEPRD497190

Damage payments

INTRODUCTION:

Damage payment programs are a way to compensate landowners for damage from various wildlife, including predators and ungulates.

IN-DEPTH:

In these programs, landowners are reimbursed for damage that results from wildlife presence on their land.[72] Damage payment programs are different from depredation payments and payments for presence because damage payments cover more than just damage from predators. Damage payment programs may cover damage from elk, deer, or other wildlife that may impact a landowner or their operation.[73] In some states like Colorado and Montana, for a landowner to be eligible for damage payments resulting from big game, the landowner must prove that they allow a reasonable amount of hunting on their land and take steps to prevent such damage. In Colorado, the average damage payment was $2,400 per incident to landowners who allowed for hunting and worked to prevent damage.[74] In Montana, landowners may be eligible for additional hunting tags if they have qualifying damage.[75]

Landowners can contact their local game and fish offices or the U.S. Fish and Wildlife Service for more information on damage payments. Local NRCS offices may also have information on damage payment programs.

OPPORTUNITIES AND LIMITATIONS:

Opportunities:

- Allows more landowners to be eligible for payments
- Reduces wildlife-human conflicts

Limitations:

- Landowners may not be willing to allow for hunting
- Payments may not fully compensate landowners for their loss

72 https://digitalcommons.unl.edu/cgi/viewcontent.cgi?referer=https://www.google.com/&httpsredir=1&article=1826&context=icwdm_usdanwrc
73 https://fwp.mt.gov/conservation/landowner-programs/game-damage-program; https://cpw.state.co.us/aboutus/Pages/GameDamage.aspx
74 https://cpw.state.co.us/aboutus/Pages/GameDamage.aspx
75 https://fwp.mt.gov/conservation/landowner-programs/game-damage-program

Impact Bonds

INTRODUCTION:

An impact bond is an investment tool where investors realize gains based on the achievement of specific conservation goals.

IN-DEPTH:

Like a typical bond, an impact bond is an investment tool that investors may purchase.[76] Investors who buy impact bonds provide the upfront capital needed for a conservation organization to implement conservation practices with measurable outcomes.[77] Then investors may earn a repayment on their investment if the conservation outcomes are met. Usually, governments or nonprofit entities repay the bond with interest. The Conservation Fund (TCF) recently implemented an impact bond program.[78] TCF purchased land for conservation using the proceeds from the bond sales and improved management practices on owned land.[79] Investors will earn interest based on the achievement of conservation metrics like acres of protected lands, carbon emissions sequestered, acres of habitat protected, and others.[80] Another example of an impact bond is the World Bank's Rhino Impact Bond.[81] This bond invests in the conservation of black rhinos and their habitat. Investors will earn interest based on the population of black rhinos through the bond period.[82]

These are still relatively rare, but landowners can reach out to The Conservation Fund or their local land trust for information on bond programs.

OPPORTUNITIES AND LIMITATIONS:

Opportunities:

- Market-based solution
- Moves away from the traditional model of donations for conservation

Limitations:

- Requires a conservation funder to pay back the bonds
- Only viable at large scales
- High overhead and management costs
- Needs to be implemented at a very large scale

76 https://www.oecd.org/cfe/leed/UnderstandingSIBsLux-WorkingPaper.pdf
77 https://www.brookings.edu/multi-chapter-report/measuring-the-success-of-impact-bonds/
78 https://www.conservationfund.org/green-bonds
79 https://www.conservationfund.org/images/The_Conservation_Fund_Green_Bond_Impact_Report.pdf
80 https://www.conservationfund.org/images/TCF_Green_Bond_Framework_September_2019.pdf
81 https://www.bloomberg.com/news/articles/2021-03-24/world-s-first-wildlife-bond-to-track-rhino-populations-in-africa
82 https://www.cnbc.com/2019/07/18/what-is-a-rhino-bond-here-is-all-you-need-to-know.html

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