

Oregon Department of Forestry

Land Exchange Policy: A tool for climate resilient landscape management

Background Paper

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Abstract

This report summarizes a landscape-scale approach to address underlying causes of wildfire and natural disaster resilience, establishing an opportunity to address the fundamental cause on a large scale, with public-private partnerships, federal, and state owners in cooperation to support wildfire resilience and climate adaptation. This approach utilizes the tool of Land Exchange informed by PODS Potential Operational Delineations, to address the root cause of land fragmentation and conflicts arising from dispersed tenure during disaster management, wildfire efforts, the implementation of climate-smart forests, and climate change initiatives. The resulting simplification of ownership delineations enables land managers, planners, responders, and scientists to implement strategies¹ necessary for the mitigation and adaptation of cross-boundary wildfires, climate change, energy transformation, carbon storage, essential data collection², and ecosystem integrity. Implemented structured and strategically, Land Exchange facilitates climate-smart forest and efficient fire management.

Key terms:

Land exchange, blue rash, FLMPA, Public Natural Resources Law, Public Land Law Review Commissions, Ecosystem Restoration, wildland fire resilience, PODS, Land Exchange History, community forest programs, Indigenous land ethics, wildlife corridors, economic multiplicities (divesting and diversifying NR portfolios), climate change, carbon plan, adaptation strategies, landscape-scale resilience, international climate strategies.

Introduction of Subject

The fractured checkerboard of land ownership in the west, especially in Oregon, makes land management challenging between Federal, Private, and State owners. This hurdle is exacerbated during disaster management of wildfires³, climate change mitigation, and adaptation strategy implementation. The incongruence of land management objectives and practices across disjointed parcels leads to costly conflicts and disorganized preparation and responses to wildfires and other climate change challenges.

On June 30th, 2022, the Western Governors recognized the significance of this problem with Policy 2022-10⁴, calling on Congress to adapt legislation to expedite solutions to the fragmented checkerboard. While it may initially seem complex to implement locally, there is international momentum for land reorganization for landscape resilience and climate change adaptation. In Europe and Asia, this process is known as Flurbereinigung (Germany), remembrement (France), ruilverkaveling (Netherlands), and LCPs (Land Consolidation Project- China)⁵. Expressed support comes from the FAO⁶ of the UN and The World Bank, who recently released a statement in 2021 highlighting the importance of concentrated land tenure as central to the fight against climate change. With wildfires increasingly occurring in greater extremes in the West as a result of changing climatic and process-oriented pressures, strategically arranging land ownership patterns can further Oregon's forestry goals.

Locally, the problem of fractured land ownership can be directly addressed by reorganizing the checkerboard into continuous parcels that can be managed cohesively. This paper attempts to demonstrate how Oregon can utilize Land Exchange for the betterment of disaster management, fire resiliency, and the public interest in general.

Upgrading 2-D vision for 3-D vision: Land exchange is just a tool to address the underlying problem created by a land management model used out of necessity- not out of best practices. When the United States was forming as a country some 237 years ago, the Western Territories were largely unknown and unmapped-yet they had to be distributed for the formation of States and the building of an economy. So a grid system- the PLSS system, was used to cleanly pass out ownership 'tickets'. While this checkerboard works if you're a chess player, it does not reflect the ecosystems, watersheds, and firesheds that we now know and love today as a community of land managers and stewards. Now that the Natural Resource community has developed technology and methodologies of projecting fire and climatic outcomes, society can utilize best practices and information to design resilient landscapes, thriving communities, and improved economies.

Land Exchange is a method of consolidating land ownership by essentially trading the rights to one parcel, or portion of parcels, for another. Land Exchange happens when a federal land and a non-federal land are identified for exchange, either as a single property or an assembled collection.⁷ The resulting simplification of ownership delineations enables land managers, planners, responders, and scientists to implement strategies⁸ necessary for the mitigation and adaptation of cross-boundary wildfires,

Complimenting PODS, or Potential Operational Delineations, for wildfire management

² One feature of having continuous land ownership is the ability to track over time the migration of carbon, how and where it is stored, and its transformation over time. It also enables wildlife and other keystone species to establish themselves and their functionalities and relationships to be inventoried. The tragedy of not having an accurate inventory of species and ecosystem functions was demonstrated in the 2020 Australian fires. When asked how much wildlife had died and what species they lost during the fires, they were unable to respond due to not having a long term baseline inventory. ³ Fleming et al. 2015 "Potential conflict between the missions of federal and state land agencies presents a challenge for disaster management, and differing governmental

levels and land-use mandates may highlight relationships where tensions are likely greater." https://onlinelibrary.wiley.com/doi/abs/10.1111/puar.12353

⁴ https://westgov.org/resolutions/article/policy-resolution-2022-10-federal-state-land-exchanges-and-purchases

⁵ Land Consolidation is one of the major strategies in BNRC Building New Rural Communities Initiative (2020)https://www.mdpi.com/2073-445X/9/4/118/pdf

⁶ Food and Agriculture Organization

⁴³ C.F.R 2200.0-6(a)

⁸ Complimenting PODS, or Potential Operational Delineations, for wildfire management

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climate change, energy transformation, carbon storage, essential data collection⁹, and ecosystem integrity. Implemented structured and strategically, Land Exchange facilitates climate-smart forest and efficient fire management. We have the opportunity to not only simplify and reorganize our land management base for the complexities of the challenges of climate change that face us but also the opportunity to participate in solidarity on a biospheric level for ecosystem integrity and global SDG¹⁰s.

II. Body of Information



Part 1: Background & history:

The image on the left depicts the initial Public Land Survey created by the Public Land Ordinance in 1785. The image on the right is an example of the current disruption of landscapes between Federal and Non Federal land owners

It's fairly easy to take our landscapes for granted, to think that they have always been somewhat similar to how we see them now. However, if we could see a timelapse of the last hundred, or last 237 years, we would see such drastic changes that we would deeply consider why we chose to organize ourselves in this manner. 'The Blue Rash'. 'Fragmented landscape'. 'Patchwork'. All of these terms describe the ecological, managerial, and "cartographic chaos" that poses numerous challenges to management of lands and threats to wildfire mitigations.

https://www.un.org/development/desa/disabilities/about-us/sustainable-development-goals-sdgs-and-disability.html Land Exchange: A tool for Climate Resilient landscape management

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⁹ One feature of having continuous land ownership is the ability to track over time the migration of carbon, how and where it is stored, and its transformation over time. It also enables wildlife and other keystone species to establish themselves and their functionalities and relationships to be inventoried. The tragedy of not having an accurate inventory of species and ecosystem functions was demonstrated in the 2020 Australian fires. When asked how much wildlife had died and what species they lost during the fires, they were unable to respond due to not having a long term baseline inventory.
¹⁰ Sustainable Development Goals (17) as defined by the UN:



Timeline of Land Exchanges created for the purpose of this paper

Around the time period of the Revolutionary war, when the United States was developing its statehood, the Federal government accumulated vast tracts of land, through the Paris Peace treaty, land cessions of the Eastern States over its Western Territories and various other purchases and wars. In 1785 the Public Land Ordinance was put in charge of allocating and selling out those lands to pay off debts from the war, start new states, and stimulate new economies. States were given 70 million acres of Townships, with sections 16 and 32 reserved for common schools. In order to handle the increasing population demands, land and timber business of the new Western states, the General Land Office was created in 1812 to distribute Railroad grants. Railroads were given around 130 million acres alternating every other square mile, creating a checkerboard pattern, this is especially noticed in the Oregon and California Railroad territories west of the Cascades in Oregon.

Oregon and California Railroad counties received a significant portion of proceeds from all timber sales, making these counties more dependent on timber production and sale than other counties.

By 1893 the superintendent of the census already identified the problem, claiming, "the unsettled area has been so broken into by isolated bodies of settlement that there can hardly be said to be a frontier line." This is significant now when we face a need for viable frontiers to face emerging ecological challenges posed by climate change. Initial land distribution paid little or no thought to the future management of these lands or how to use these checkerboarded strips for any ecological function.

Furthermore, little to no heed was given to the previous land managers of the Western Territories, the Indigenous tribes, who were either killed en masse in the ethnic cleansing or relocated off the land they had been tending to for centuries. It wasn't until 1924 that Indigenous First Nations could apply for citizenship on the same territory they had lived in for generations. Indigenous claims to public lands were dismissed and their participation in federal land exchanges was largely overlooked.¹¹

The peak of corruption in land exchanges and natural resource use was classified as 'The Great Barbeque phase' or the Disposal Period from the 1780s-1860s. Public Lands were taken advantage of through early In Lieu clauses, allowing parties to completely clear cut a land and strip it of resources, and then exchange that parcel for another one without survey. A wholesale rampage of land grabbing and timber cutting continued unchecked, raising alarms at the rate of destruction until 1903 when the President proclaimed all public lands now withholden for the preservation for future generations. Thus officially transitioning the Disposal Period into the Conservation Period (starting in 1891). The Taylor Grazing Act was initiated in 1934, eventually maturing into the BLM in 1946.

Land exchanges are voluntary real estate transactions that have been utilized since the 1785 Public Land Ordinance. While many policies have been introduced to assist the Exchanges to function more equitably, effectively, and efficiently, much of the function is the same. Land Exchanges are and have been a rational tool for dealing with this irrational checkerboard landscape, helping federal and non-federal

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¹¹ Transforming Property: Reclaiming Indigenous Land tenure, 107 Calif.L. Rev 1531 (2019); Issac Kantor, Ethnic Cleansing and Americas Creation of National Parks, 28 Pub Land & Res L Rev. 41 (2007) Land Exchange: A tool for Climate Resilient landscape management

parties exchange land to better reflect the landscapes and ecosystems they work with, informed by local knowledge and ideally reflecting public needs.

In 1976 FLPMA Federal Land Policy and Management Act were passed to address Land Exchanges in a more cohesive and ethical manner. In 1994, Nevada took an innovative leading role in how land exchanges operate with SNPLMA, introducing the sale and holding of funds instead of just land for land exchanges. Nevada sold off smaller tracts of highly valuable land around the burgeoning populace of Las Vegas to then turn around and buy an exponentially larger quantity of land for wildlife in areas of Nevada with less concentrated populations. This act inspired the federal government to add to its policy with the 1999 FLTFA Federal Lands Transaction Facilitation Act, aimed at helping Federal Land exchanges be less cumbersome. This introduced the idea of selling off public lands, and holding the proceeds in an interest-bearing account, where they could be used in the future when the market was more amicable to the federal parties purchasing land from private sellers. The current trend of Land Exchanges has been smaller tracts, and individual parties, exchanging one for one smaller landscapes for private or single organization goals. This only recognizes a small portion of the functions and possibilities of land exchanges. The next part describes *how* Land Exchanges can be conducted.

Part 2: How to

Land Exchange happens when a federal land and a non-federal land are identified for exchange, either as a single property or an assembled collection.¹² Simply speaking, there are two types of Exchanges: 1) *'Land' for 'land'*: Fee Simple Absolute title, bought outright, or exchanged outright for equal value. <u>OR</u> 2) *'Land' for partial Interests*: i.e. a conservation easement or cross-boundary wildfire management and resilience easement CBWRE¹³. 'Land' can either be a *single property*, or an *assembled property*. However, in more complete terms Land Exchanges can happen:

- 1. Outright, through Voluntary Purchases (LWCF¹⁴ allocates up to \$900 million annually),
- 2. Exchange for equal value land,
- 3. Eminent domain.
- 4. Less-than-fee interests (development or easements),
- 5. *Enclave* and *Property Clause* (federal land use regulations on privately owned property, in a pocket or a border)
- 6. *Land Trusts* (They can exchange for listings that are above the market value which Federal parties cannot do, and Trusts sometimes have more funding than federal budgets. Inholdings, p 445), and lastly
- 7. *Purchase and sell back* with deed restrictions.

Land identified for exchange needs to meet three requirements:1.) **equal values** reflecting fair market price, 2) **public interests** are met as a result of the exchange, and, 3) the exchange is for the land's **highest and best use**. Once the three requirements are met, there are many different existing avenues for executing the exchange.

^{12 43} C.F.R 2200.0-6(a)

¹³ This acronym was created for use as an example of how Land Exchange easements could be used with a legislative effort for the desired outcomes of wildfire resilience cohesiveness
¹⁴ Land and Water Conservation Fund

Part 3: The Future of Land Exchanges

The future of Land Exchanges is also the future of how we steward, work, and manage our land. Do we take an integrative approach or a fractured approach? A cohesive and focused approach? When the challenge is complex, having a detailed effective map, with a shared foundation, improves the chance of success. Improving cross-boundary wildfire management is identified as a top national priority, but effective, ecosystem-scale solutions such as consolidation of land ownership through land exchanges are not readily apparent. While the complexities and challenges of starting and completing a Land Exchange may seem daunting, and there are plenty of opponents, the end result is worth the challenge if it provides a better platform to face global climatic disasters effectively.

All Hands, All Lands

The PODS

Potential Operational Delineations, or PODS, is a package of information used to accelerate the efficiency of fire and land managers. A POD is an area outline that defines where the best probability control lines are and is shaded in for the objectives of a fire if it were to occur in that zone. Taking ridgelines, roads, rivers, vegetation types, historical fire data, WUI threat, and other landscape factors in, and layering them on top of one another, one can see where the natural regional boundaries are as dictated by the ecosystems fireshed. Fireshed recognition is an important factor, just as watershed protection, for the health and safety of living systems.

PODS are an important component in Land Exchange as they provide a template for prioritization. PODS are utilized for prioritization already in fuels prevention and fuels treatment; they can also shed light on where land needs to be aggregated to best reflect our bioregion with respect to emergent future scenarios. By applying the knowledge of where fire most naturally occurs and what values are/are not at risk, land managers can strategize what land to exchange where. This more honestly reflects the multiple values converging the anthropogenic and ecocentric framework. See Illustration 1 in the appendix.

Nothing is more powerful than groups of people who become clear minded about their common purpose" - Chris Ernst.¹⁵ Boundary Spanning in Action: Tactics for Transforming Today's Borders into Tomorrow's Frontiers

Since PODS rollout in 2016, PODS has supported 75 fires from 2017-2019, and 60+ fires in 2020. In 2020 that included the Holiday Farm, Lionshead, Matlock, and Devils fire among others in Oregon. The combined capacity of PCL (potential control locations) SDI (Suppression Difficulty Index) and SRZs (Strategic Response Zones) along with the collected values on land managers response, affect/effect, and cost efficiency is compelling. Jamie Long, and Incident Commander on the Gurule and Montanya Fires shared in *Potential Operational Delinations: On the Ground Experiences and Future Directions,* that the creation of PODS must be digestible, static, and usable. Digestible meaning that the information is straightforward and terse, static meaning that ideally the POD is created in the off-season when decision makers have space to deeply consider variables and values, and usable, it's not just a theory or good idea- but it actually works with the boots on the ground. PODS become an underlying information source for guiding Land Exchange opportunities.

So how are PODS created? We can simplify it into a 3 part process.

¹⁵ Quote from <u>boundaryspanningaction.pdf (cclinnovation.org)</u>

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During your first stage firefighters and folks with local knowledge of the layout of the land are gathered together to review maps and the data available about the region. Using fire history, boots-on-the-ground knowledge, weather patterns, fuels and fire behavior specifications, etc, firefighters are able to pre-plan where the most strategic line would hold in accordance with fire behavior and firefighter first responder safety.

The second phase is established by stakeholders and managers who pour over the initial information package with the addition of the firefighters POD sketches locating the most strategic lines to hold. This group then completes and adjusts the area depending on values, managerial perspectives, and budget allocations.

The third and final step then completes this comprehensive landscape approach to wildfire and disaster mitigation and determines outcomes and intentions for each of the PODs created. How land managers use them and the basis of response actions in the future.





III. Summary

"Land Exchanges provide a highly rational solution to an irrational land management situation"¹⁷ This historical chaos created unintentionally through the checkerboard can be remediated through land exchanges. It is evermore pressing at this time of international efforts to address climate catastrophe and economic transformations. As Oregonians and land stewards, we can use this opportunity to strategically position ourselves and our lands through land exchanges to optimize our chances of success and collective safety.

Land exchange legislation and policy changes are statistically more likely to bring forth the desired outcomes of wildfire and climate adaptation and resilience. Exploring Land Exchanges in creating an ecosystem-based framework for developing new policies that will better serve and protect Oregonians and the public at large in these times of climate change and increased fire severity should be a top priority.

A more effective and efficient land exchange program is critical for creating more effective and efficient land ownership patterns to cope with climate change. Leshy is the 2010 publication, *Federal Lands in the Twenty-First Century* states, 'Just as species will migrate in the face of climate change, our federal lands will have to do some migration as well... a successful adaptation program will need to reconfigure or realign the pattern of federal landholdings with emerging needs." ODF and Oregon can meet these emerging needs.



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¹⁶ https://www.fs.usda.gov/rmrs/potential-operational-delineations-pods

¹⁷ Raleigh Barlowe et al. Land Disposal Techniques and Procedures: A Study Prepared for the Public Land Review Commision (1970)