Multifunctional Transmission Corridors:

The Case for Integrating Local and Landscape Benefits into Transmission Corridors

December 2025

A Collaborative Paper inspired by the *Designing Multi-Benefit Transmission Corridors* workshop at the University of Pennsylvania, August 15, 2025

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Citation

Pevzner, N., Yu, Y., Morrice, K., Henderson, C., Floyd, C., Mehta, S., & O'Neil, R. Multifunctional Transmission Corridors: The Case for Integrating Local and Landscape Benefits into Transmission Corridors [White paper]. Pacific Northwest National Laboratory and University of Pennsylvania. December 2025. https://www.design.upenn.edu/sites/default/files/files/events/MultifunctionalTransmissionCorridors_PNNL-UPennWhitePaper_2025.pdf

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What is a Multifunctional Transmission Corridor

Most electrical transmission infrastructure operates within a linear footprint commonly called a powerline corridor or transmission right-of-way (ROW). Because these assets are critical energy infrastructure, transmission corridors are typically planned and operated through an engineering-based lens focused on reliable power delivery.

As part of the nation's critical infrastructure, transmission corridors extend across the U.S. and traverse a wide range of landscapes and settlement patterns. With accelerating demand for electrification and high-energy load facilities such as data centers, expansion and reinforcement of the transmission network is expected. Attention to landscape features and local interests in transmission infrastructure and corridors is therefore freshly important. But how can we pivot to a benefits-focused planning lens and capture the multiple benefits that corridors could offer as part of planning new transmission?

One practical approach is to plan transmission ROWs as multifunctional corridors that can deliver local and ecological value without compromising grid reliability. When strategically planned and managed, corridor spaces can host recreational connections, ecological conservation and restoration, and local economic activity compatible with utility operation. Moreover, these benefits could be amplified by linking these long linear ROWs to adjacent resources such as parks, greenways, canals, and railways, creating synergies with neighboring land uses (see **Table 1**).

Table 1. Benefits of multifunctional transmission corridors

Benefits	Description	Example measures	Example partners
Recreation	Everyday access to outdoor activity; safer walking/biking; social cohesion	Shared-use trails within ROW; outdoor programs; links to parks and greenways, transit	City Parks & Recreation departments; School; Utility; community groups
Ecological conservation & restoration	Grassland or early successional habitat connectivity; pollinator and bird habitat	Integrated vegetation management (IVM): native/early successional planting; wetland/riparian restoration; wildlife-friendly crossing	Conservation NGOs; watershed/state wildlife agencies; Utility
Economic development	Local jobs and contracts; shared revenue; community wealth and trust	Community wealth building; Revenue-sharing or community ownership stakes; job opportunities linked to utility's O&M	Utility, Municipality, Workforce boards, Tribal Nations.

There is ample evidence that designing multifunctional transmission corridors is feasible today.

First, transmission corridors traverse populated areas at scale. According to recent PNNL analysis based on 2020 U.S. Census data, over 226 million people live within one mile of a transmission line—this is almost two-thirds of the entire American population. Not only are these lines located nearby, but they constitute a sizeable area: According to the analysis, existing transmission corridors make up 11 million acres across the U.S., many of them already host to other uses besides transmission. Second, precedents for multifunctional transmission corridors exist; utilities typically allow colocating electric transmission with other utility infrastructure, such

as telecommunications cables. In some cases, utilities will place transmission corridors within canal, railway and road corridors, demonstrating that carefully managed co-use is feasible (see **Figure 1**).

Figure 1. Examples of transmission ROW colocation[1] examples. From left to right: canal-site multi-use path (SPR PERA facility, AZ, credit Rebecca O'Neil); urban greenway within a city power corridor (Salt Lake City, UT, credit Emma Hibbard); transmission line parallel to the Hartline-Coulee City rail line (WA, credit Irena Netik); and horses grazing under a transmission line (Campbellsville, KY, credit Rebecca O'Neil)

Third, win-win partnerships between utilities and communities are emerging. Practical agreements between utilities and communities keep grid reliability as top priority followed by improved use of the space. Where safety, access, and vegetation standards are met, underused land within corridors can support wildfire-resilient environments, new recreational opportunities and safer pedestrian access, and conservation of wildlife habitat (see **Figure 2**). Taken together, these factors indicate that reclaiming restricted land for productive, compatible co-benefits is both possible and worth pursuing.

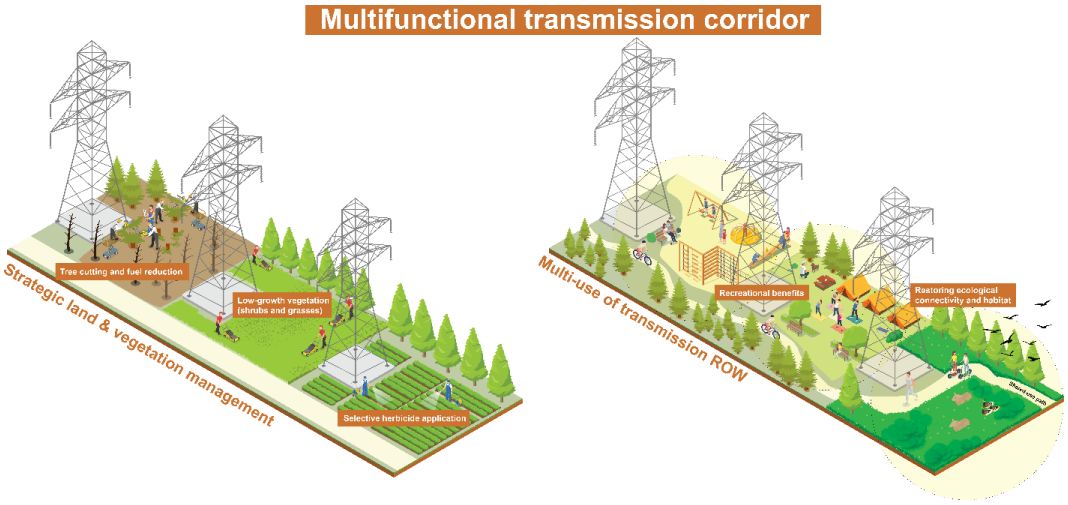

Figure 2. Concept image for multifunctional transmission corridors. Credit: Yeongseo Yu, PNNL.

[1] Colocation means the intentional siting of two or more linear infrastructure facilities within the same authorized ROW and utility corridor.

Why Create a Multifunctional Approach

A multifunctional approach is a design and planning framework that can reimagine traditionally underutilized transmission ROWs as more productive spaces. It seeks to layer compatible recreational uses that are not in competition with ecological conservation efforts or local wealth creation, without requiring new land acquisition or compromising utility operations.

The multifunctional approach applies to both retrofits of existing ROW and the early siting and routing of new or rebuilt corridors. In addition to existing corridors, there is an as-yet underdeveloped role for a multifunctional approach in how we plan, site, and permit new transmission infrastructure. Given ongoing grid expansion efforts to meet rising electricity demand, it is timely to consider these long, linear transmission corridor spaces as strategic assets that can deliver public and environmental benefits beyond traditional energy transmission. While transmission build-out has historically responded to electricity planning norms and power transfer requirements for power grid reliability, the plain fact is that constructing new lines in a new physical space presents serious challenges. Siting considerations and new methods need to be integrated into traditional transmission planning processes; planning lines with intentional multi-benefit corridors is one obvious path.

Local concerns with new transmission facilities commonly center on visual change and vegetation removal, electromagnetic fields (EMF), and potential effects on property values and quality of life. To respond to these concerns, developers can implement multifunctional corridor design strategies. Bundling tangible co-benefits can mitigate perceived risks, build trust, and improve acceptance, which may enable timely permitting without compromising grid reliability.

Despite all of this potential, implementation of this approach faces several practical hurdles: there is no standardized planning pathway for introducing compatible uses within transmission ROWs (Holland et al. 2018); land ownership is typically fragmented across utilities, federal, state, tribal, and private entities (Andrews, 1990), which can complicate permissions, easements, and liability; every project needs a motivated champion based on voluntary and case-specific partnerships between utility and mission-driven organizations.

This white paper examines the range of benefits that are already possible today. Then, we present examples of partnerships that deliver cooperative benefits. We conclude with key interventions and ideas that can make these benefits possible, inspired by the August 2025 Designing Multi-Benefit Transmission Corridors workshop[2] at the University of Pennsylvania.

[2] The University of Pennsylvania, Weitzman School of Design. 2025, August. “Designing Multi-Benefit Transmission Corridors.” Accessed November 17, 2025. https://www.design.upenn.edu/events/designing-multi-benefit-transmission-corridors.

Benefits of Multifunctional Transmission Corridors

Recreational Benefits

1. Recreational opportunities: project-scale and system-scale evidence

Transmission corridors can support recreation without compromising utility service when access is permitted and baseline design and safety standards are met. Where recreation is allowed but trails are not formally managed, corridors typically host informal, non-motorized use (e.g., hiking, horse riding, skiing, snowshoeing). In some settings, motorized uses (ATVs, snowmobiles) also occur.

As demand and management capacity increase, these informal patterns can evolve into maintained trail systems. Surface and context shape what is feasible. Unpaved, natural, or gravel paths support everyday opportunities for walking, running, mountain biking, and dirt biking, especially in suburban and rural areas. By contrast, paved shared-use paths support a narrower set of activities but offer greater accessibility for utilities' operation, management, and safety in urban contexts—these cases are often referred to as "Powerline Trails" (e.g., Germantown, MD; Greenfield, WI; Redmond, WA) or named for the utility (e.g., Duke Energy Trail, FL; CenterPoint Energy Trail, TX).

At the system level, co-locating recreation within or alongside transmission ROWs is already widespread. The Rails-to-Trails Conservancy reports that more than 400 multi-use trails are collocated with transmission corridors, and 17% of rail trails overlap or run parallel to utility ROWs (Matteson 2021). This pattern confirms a practical, scalable strategy that leverages existing linear infrastructure rather than requiring major new land acquisition. Colocation also appears for node-based amenities as spans and clearances allow. For example, Rock Creek Powerlines Park (Portland, OR)[3] includes soccer fields and Ladera Power Lines (Mission Viejo, CA)[4] hosts a disc golf course. A larger, landscape-scale example is Raccoon Mountain in Chattanooga, TN (Tennessee Valley Authority)[5] , where an extensive mountain-biking and multi-use network borders the pumped-storage hydropower facility, with approximately 8 miles of trails following high-voltage transmission lines.

2. Recreation-enabled benefits across stakeholders

Access to recreational opportunities within electric transmission corridors can significantly enhance the well-being of individuals and groups. Regular outdoor recreation improves physical health, reduces stress, and contributes to improved mental health outcomes (Maller et al. 2006;

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[3] Tualatin Hills Park & Recreation District (THPRD). n.d. "Rock Creek Powerlines Soccer Fields." Accessed November 17, 2025. https://www.thprd.org/parks-and-trails/detail/rock-creek-powerlines-soccer-fields.

[4] Ladera Ranch Community Services. n.d. "Disc Golf." *LaderaLife*. Accessed November 17, 2025. https://laderalife.com/amenities/disc-golf.

[5] Outdoor Chattanooga. n.d. "Raccoon Mountain". Accessed November 17, 2025. https://outdoorchattannooga.com/raccoon-mountain.

Jimenez et al. 2021), with evidence linking it to improved cardiovascular health and reduced risk of mortality (A. C. K. Lee and Maheswaran 2011). In cities and suburbs where green space is limited, multifunctional corridors may function as accessible places for exercise, relaxation, and contact with nature while offering convenient routes for walking, jogging, and biking. Beyond health, recreational access fosters a sense of place and community identity (Relph 1976; Moore 1994), transforming utilitarian spaces into areas people value. These places also strengthen local cohesion by providing low-stress settings for people to partake in shared outdoor activities (R. S. Ulrich et al. 1991).

Well-designed multi-use trails within transmission corridor spaces enhance community objectives such as mobility and safety (Mullenbach et al. 2018). Mobility is improved with connected, legible routes; these are routes that people understand where a trail starts, ends, and what's around, with predictability of wayfinding. Safety is improved by increasing passive surveillance; well-trafficked routes are safer as more people visit them. Trails within these spaces can be used as platforms for educating the public about local ecosystems, wildlife, and cultural history. Educational guided tours and outdoor learning programs can foster awareness of sustainable practices. Additionally, these recreational spaces have the potential to boost local economies (Lukoseviciute, Pereira, and Panagopoulos 2022). Trails and parks attract visitors, including tourists, who may spend money at nearby businesses such as restaurants, shops, and lodging facilities (Nelson et al. 2001; Betz, Bergstrom, and Bowker 2003). The integration of businesses near transmission corridors can also create jobs and spur economic development, making these spaces valuable assets to communities.

Partnerships with local governments and non-profit agencies can share responsibility for vegetation management, infrastructure upkeep, and public safety, which may ultimately lower utilities' operation and maintenance costs (Rails to Trails Conservancy, n.d.). Regular corridor maintenance—whether the access road is paved or well-maintained gravel—reduces vegetation encroachment and helps support grid reliability by enhancing maintenance access and reducing vegetation-related disruptions from downed power lines.

Utilities typically do not own the land where their infrastructure is located. Instead, they secure agreements, often in the form of easements, with private or public landowners that allow them to develop, operate, and maintain their equipment. However, these agreements rarely include provisions for recreational uses (Pay, J., 2013). Consequently, utilities, landowners, and third parties have collaborated to establish trail-use agreements, such as the City of Houston's Master License Agreement with CenterPoint (City of Houston, & Houston Parks Board LGC, Inc., 2015). These agreements include strict guidelines to ensure uninterrupted utility operation and public safety. They also allocate risk through indemnification and insurance provisions that can limit utility liability for recreational use.

Utility guidelines often address trail design, specifying dimensions, surface types, vegetation characteristics, and the placement of amenities. Additionally, restrictions may apply to stream and road crossings, access to critical infrastructure like substations, and the protection of sensitive habitats (e.g., Duke Energy Transmission ROW Restrictions). These measures collectively ensure the compatibility of recreational use with the primary function of utility

corridors. Developing recreational opportunities within utility corridors depends on the rules and regulations established by utilities, landowners, and applicable local, state, or federal policies. Recently, states have created positive incentives for corridor collaborations. For instance, in the last three years Colorado and New York legislatures have considered bills to allow transmission providers to collaborate with public entities, such as municipalities and private landowners to facilitate the creation and management of public recreational trails within areas designated for existing or planned transmission lines.

Ecological Benefits

1. Conserving wildlife habitats (site-scale value)

Transmission corridors, when planned with clear vegetation management objectives and Integrated Vegetation Management (IVM), can improve site-level biodiversity. IVM is a selective, site-specific, adaptive approach that can remove incompatible tall-growing species and establish low-stature, compatible plant communities (McLoughlin 2002). This differs from the conventional vegetation management because it relies on targeted treatments with monitoring and adaptative follow-up (Nowak and Benjamin 2005). Therefore, the designed and planned spaces under transmission lines not only increase diversity of the local habitat mosaic (e.g., grasslands, meadows, prairies) but also raise site-level biodiversity.

For example, empirical studies of transmission corridors where IVM is applied have found diverse early successional wildlife species, including pollinators, reptiles, birds, and small mammals (Yahner, Yahner, and Hutnik 2007; Smith et al. 2008; Komonen, Lensu, and Kotiaho 2013; Berg et al. 2016; Wagner, Metzler, and Frye 2019; Garfinkel et al. 2022, 2023).

Also, forest edges created by transmission development can provide valuable habitat for certain species. Multiple studies have found that edge habitats can provide nesting opportunities for bees (Russell, Ikerd, and Droege 2005), butterflies (Berg et al. 2011), and early successional birds and mammals (Askins, Folsom-O'Keefe, and Hardy. 2012; King et al. 2009; Clarke and White 2008). Edge areas can also provide a gradient of plant density and height, which can be beneficial for conserving native plant species (Petitta, López-Uribe, and Sabo 2024).

2. Restoring ecological connectivity (landscape and network value)

Because transmission corridors are largely long and treeless linear zones, well-managed corridors can function as low-resistance linkages connecting parks, riparian corridors, and other habitat remnants, especially for grassland and early successional species. In such settings, several empirical studies have reported higher bee species richness[6] (Wagner et al. 2014) and viable bumblebee habitats under power lines (Hill, B., & Bartomeus, I. 2016), though responses could vary by site, species, and may not be likely for forest-interior species. North-south oriented corridors, or corridors with favorable elevation gradients, may help open-habitat species shift ranges (Dupras et al. 2016). This is especially possible when the corridor spaces connect to core habitats via safe crossings with sufficient food and water resources at

[6] the number of bee species observed

landscape scales. These expected outcomes depend on species' dispersal distances and traits, so design and planning should use adaptive management tailored to species and context.

3. Preserving pollinators (species-specific value)

Managing the areas under wires as low, open grassland can maintain grid safety and provide season-long nectar and pollen for pollinator insects. Given the ongoing decline of insect populations (Potts et al. 2010), this management could support native pollinators—not just bumblebees and honeybees—and strengthen ecosystem services, promoting broader conservation benefits (Wagner, Metzler, and Frye 2019). Once established, transmission corridors can also function as refugia and movement routes for rare or threatened insect species, when paired with region-appropriate plants and proper maintenance timing windows. Utilities can use this approach based on established frameworks and tools (see **Table 2**).

Table 2. Resources for vegetation management for utilities

Program/Tool	Description	Organization
Power-in-Pollinators Initiative	A collaborative effort among utilities, conservation groups, and research organizations to advance pollinator conservation	EPRI
Bee Better Certified Electric Program	Certification tailored to electricity transmission corridors to verify pollinator-safe vegetation management	Xerces/EPRI
WHC Conservation Certification	Corporate land habitat certification widely used by utilities; provides standards, design guidance, and recognition for pollinator projects	Wildlife Habitat Council
Pollinator Garden Challenge	National program where people register and report pollinator gardens; good for engaging communities near the corridor.	Million Pollinator Garden Challenge
Pollinator Stewardship Dashboard	Central dashboard for utilities to log, visualize, and share pollinator actions and outcomes across portfolios	EPRI

Economic Development Benefits

Economic development in transmission corridors can encompass multiple goals for local benefit. Based on existing ownership and financial models, local entities can consider a range of roles they wish to play within the transmission project: as a lessor, investor, or direct beneficiary (Synapse Energy Economics. 2017; Theodos, Rebecca, and Tanay 2021; Kienbaum, Farrell, and Grimley 2023).

Landowners may consider options like land trusts as a pathway to accessing benefits of transmission projects (Davis 2010). Here local landowners could transfer owned land to a single trust and would receive rental income from the transmission developer or operators. Communities wishing to build wealth from transmission development could invest in local workforce development such as pre-apprenticeships and certification regarding line worker basics, IVM, habitat restoration licensure, or other forms of infrastructure and capital. Communities seeking to participate as investors could consider Community Development Financial Institutions (CDFIs) or other investment companies as ways to use capital to receive a rate of return from transmission developers (Hanna and Kelly 2021). CDFIs could be well positioned to leverage investment income for other community benefit projects.

Communities seeking to participate as an owner or operator of transmission have several options to consider. Municipal utilities and Community Choice Aggregators (CCAs) could boost their investment in transmission to better serve their customers (Kennedy and Bailey 2020; O'Shaughnessy et al. 2019). Communities could also form benefit corporations to own, operate, or invest in transmission facilities in restructured states. In particular, because benefit corporations have a statutory public-benefit purpose and broadened fiduciary duties, they can balance profit with a defined public benefit, enabling boards to adopt community and environmental targets in corridor planning and operations.

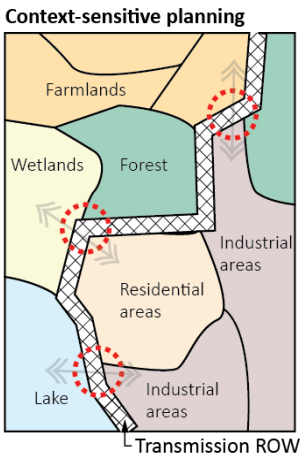
An important exception would be Native American Tribal Nations. Because federally recognized tribes are sovereign governments with government-to-government relations with the United States and have access to dedicated authorities and programs, there are established models for tribal ownership and co-ownership of transmission assets (First Nations Major Project Coalition. 2020). While the specifics vary, existing case studies of tribal ownership of transmission infrastructure in the United States and Canada all follow a similar pattern: one or more tribes contribute a portion of transmission project financing, generally through the support of private investors or government grants, and other stakeholders—generally a utility, private investors, or a combination—provide the rest of the financing and hold the remaining ownership stake (Morongo Band of Mission Indians. 2021). Tribes receive, or will receive, all or part of the revenue of these lines in their role as transmission operators or co-owners, and in some cases have leveraged construction of the transmission projects for direct job creation and workforce development opportunities.

Finally, these examples are recent and few in number, so analysis of the impacts of tribal ownership or co-ownership of transmission lines on long-term community wealth-building and other benefits remains limited.

Setting a Vision for Multifunctional Transmission Corridors

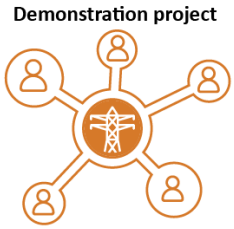
Multifunctional transmission corridors can deliver recreational, ecological, and local development benefits, yet projects may be hindered by various socio-ecological conflicts among different stakeholders as well as environmental constraints. To address this challenge and move toward implementation, we propose three big ideas:

1. Set priorities by place: a landscape architectural approach



Transmission corridors pass through diverse social and environmental settings, so priorities should be set by place rather than by a single rule. For example, recreational uses may be prioritized in segments that serve everyday community life for nearby residents, while ecologically sensitive segments may demand resource management to maintain or restore habitat connectivity and conservation. Because transmission corridors are primarily operated for grid reliability yet are located close to daily life, they require design-led, context-sensitive planning tied to measurable community and ecological benefits. Landscape architectural approaches to place are typically adept at identifying social and ecological opportunities. Landscape design can also integrate the needs and requirements of both communities and utility operators, co-design IVM and safe-access layouts that respect spatial rules and operational constraints, and treat the ROW as both critical infrastructure and a managed landscape with potential public access. This strategy enables utilities to meet reliability obligations without compromising grid operations while delivering value to communities.

2. Build and refine evidence through case studies and a demonstration project



Case studies make the concept real, by surfacing the defining attributes of multifunctional corridors and the conditions that make them repeatable and actionable in practice. Cases can identify enabling conditions (e.g., governance, easements or liability, vegetation management, perception) and translate them into decision rules and frameworks (e.g., segment types, allowable or encouraged uses). With comparable examples, future projects can be planned on evidence, not by assumption. PNNL has initiated a suite of case studies to be published in 2025, along with short format references online.

We also recommend a nationally relevant demonstration project, with a primary facilitating entity. This entity would convene utilities, agencies, communities and Tribal Nations to cooperate for the demonstration, as well as manage permitting and legal requirements through model Memorandum of Understanding (MOU) agreements or easements. A field pilot project could help compare typical corridors against a multifunctional corridor case, with independent evaluation to show equal or lower lifecycle operation and maintenance (O&M) risks and costs. Where more than one utility manages transmission ROW in the same region,

the pilot could also address how different utilities manage the corridor in the same region, so their management practices can be compared under the same condition.

3. Clarify visible incentives for utilities and communities

Visible incentives matter to both utility operators and neighbors who live near the corridor. For utilities, success means fewer O&M risks and costs, higher reliability, and reduced liability exposure—along with improved reputation and public support. For municipalities and residents, success means a safer, more attractive corridor with better access to nearby nature and more legitimate recreation opportunities. When roles ("who maintains what") and results are visible and public, trust can grow and the corridor can become a valued local asset, beyond its traditional infrastructure role. In addition, cost-sharing mechanisms such as stewardship agreements (Golden, 2023), maintenance funds, or multi-year service contracts can be established to manage utility O&M costs over time.

Conclusion

This white paper presented three key areas worth considering in transmission management and planning that may serve as a resource for utilities seeking to promote multifunctionality within their transmission corridors. Given the need for new transmission infrastructure to meet growing electricity demand (e.g., upwards of an additional 200 GW of interregional transfer capacity), the opportunity space to plan for transmission right-of-way is vast. Where transmission infrastructure is already built, maintaining and operating a safe and reliable network is the highest priority; however, where possible, utilities and transmission owners can consider voluntary planning actions or vegetation management practices that allow for other landscape-scale features to be enhanced or developed. Furthermore, the trend of utilities and companies across the country supporting non-utility goals suggests there are additional incentives to implement other co-located benefits within transmission corridors.

While this paper serves as a resource for utilities, it can likewise serve as an informative resource for the public, particularly communities and organizations interested in working with utilities and transmission developers to leverage transmission rights-of-way for public and ecological good. Integrating multi-use activities into transmission rights-of-way, such as recreation and habitat and species conservation is a promising pathway for achieving social and ecological outcomes that benefit communities. Identifying community wealth sharing opportunities, whereby local communities can benefit from the economic development associated with transmission infrastructure management and development, can likewise lead to positive outcomes.

References

Andrews, Annabelle. 1990. “Fragmentation of Habitat by Roads and Utility Corridors: A Review.” *Australian Zoologist* 26 (3–4): 130–41. https://doi.org/10.7882/AZ.1990.005.

Askins, Robert A., Corrine M. Folsom-O’Keefe, and Margaret C. Hardy. 2012. “Effects of Vegetation, Corridor Width and Regional Land Use on Early Successional Birds on Powerline Corridors.” Edited by Matt Hayward. *PLoS ONE* 7 (2): e31520. https://doi.org/10.1371/journal.pone.0031520.

Berg, Åke, Karin Ahrné, Erik Öckinger, Roger Svensson, and Bo Söderström. 2011. “Butterfly Distribution and Abundance Is Affected by Variation in the Swedish Forest-Farmland Landscape.” *Biological Conservation* 144 (12): 2819–31. https://doi.org/10.1016/j.biocon.2011.07.035.

Berg, Åke, Karl-Olof Bergman, Jörgen Wissman, Michał Żmihorski, and Erik Öckinger. 2016. “Power-Line Corridors as Source Habitat for Butterflies in Forest Landscapes.” *Biological Conservation* 201 (September):320–26. https://doi.org/10.1016/j.biocon.2016.07.034.

Betz, Carter J., John C. Bergstrom, and J. M. Bowker. 2003. “A Contingent Trip Model for Estimating Rail-Trail Demand.” *Journal of Environmental Planning and Management* 46 (1): 79–96. https://doi.org/10.1080/713676704.

City of Houston, & Houston Parks Board LGC, Inc, 2015. Interlocal agreement for utility right of way trails. https://www.h-gac.com/uploads/transportation-improvement-program-call-for-projects/10312018104620AM.pdf.

Clarke, Donna J., and John G. White. 2008. “Towards Ecological Management of Australian Powerline Corridor Vegetation.” *Landscape and Urban Planning* 86 (3–4): 257–66. https://doi.org/10.1016/j.landurbplan.2008.03.005.

Davis, John. 2010. *The Community Land Trust Reader*. Dansbury, CT: Lincoln Institute of Land Policy.

Dupras, Jérôme, Cynthia Patry, Rebecca Tittler, Andrew Gonzalez, Mahbubul Alam, and Christian Messier. 2016. “Management of Vegetation under Electric Distribution Lines Will Affect the Supply of Multiple Ecosystem Services.” *Land Use Policy* 51 (February):66–75. https://doi.org/10.1016/j.landusepol.2015.11.005.

First Nations Major Project Coalition. 2020. “The Role of Indigenous People in Major Project Development - Part II Indigenous Ownership of Electricity Infrastructure: A Case Study.” Vancouver: First Nations Major Project Coalition.

Garfinkel, Megan, Sheryl Hosler, Michael Roberts, Jess Vogt, Christopher Whelan, and Emily Minor. 2023. “Balancing the Management of Powerline Right-of-Way Corridors for Humans and Nature.” *Journal of Environmental Management* 330 (March):117175. https://doi.org/10.1016/j.jenvman.2022.117175.

Garfinkel, Megan, Sheryl Hosler, Christopher Whelan, and Emily Minor. 2022. “Powerline Corridors Can Add Ecological Value to Suburban Landscapes When Not Maintained as Lawn.” *Sustainability* 14 (12): 7113. https://doi.org/10.3390/su14127113.

Golden, Jill. 2023. “Moving from Compliance to ROW Stewardship.” T&D World. May 16, 2023. https://www.tdworld.com/vegetation-management/article/21264363/moving-from-compliance-to-row-stewardship.

Hanna, Thomas, and Marjorie Kelly. 2021. “Community Wealth Building: The Path towards a Democratic and Reparative Political Economic System.” Shaker Heights, OH: The Democracy Collaborative.

Hill, B., & Bartomeus, I. (2016). The potential of electricity transmission corridors in forested areas as bumblebee habitat. Royal Society open science, 3(11), 160525.

Holland, Robert A., Nicola Beaumont, Tara Hooper, Melanie Austen, Robert JK Gross, Philip J. Heptonstall, Ioanna Ketsopoulou, Mark Winskel, Jim Watson, and Gail Taylor. 2018. “Incorporating Ecosystem Services into the Design of Future Energy Systems.” *Applied Energy* 222:812–22. https://doi.org/10.1016/j.apenergy.2018.04.022.

Jimenez, Marcia P., Nicole V. DeVille, Elise G. Elliott, Jessica E. Schiff, Grete E. Wilt, Jaime E. Hart, and Peter James. 2021. “Associations between Nature Exposure and Health: A Review of the Evidence.” *International Journal of Environmental Research and Public Health* 18 (9): 4790. https://doi.org/10.3390/ijerph18094790.

Kennedy, Sean., and Bailey Rosen. 2020. “The Rise of Community Choice Aggregation and Its Implications for California’s Energy Transition: A Preliminary Assessment.” *Energy & Environment*.

Kienbaum, Katie, John Farrell, and Matthew Grimley. 2023. “Advantage Local: Why Local Energy Ownership Matters.” Institute for Local Self Reliance.

King, David I., Richard B. Chandler, Jeffrey M. Collins, Wayne R. Petersen, and Thomas E. Lautzenheiser. 2009. “Effects of Width, Edge and Habitat on the Abundance and Nesting Success of Scrub–Shrub Birds in Powerline Corridors.” *Biological Conservation* 142 (11): 2672–80. https://doi.org/10.1016/j.biocon.2009.06.016.

Komonen, Atte, Terhi Lensu, and Janne S. Kotiaho. 2013. “Optimal Timing of Power Line Rights-of-ways Management for the Conservation of Butterflies.” Edited by Simon R. Leather and Phil DeVries. *Insect Conservation and Diversity* 6 (4): 522–29. https://doi.org/10.1111/icad.12009.

Lee, A.C.K., and R. Maheswaran. 2011. “The Health Benefits of Urban Green Spaces: A Review of the Evidence.” *Journal of Public Health* 33 (2): 212–22. https://doi.org/10.1093/pubmed/fdq068.

Lukoseviciute, Goda, Luís Nobre Pereira, and Thomas Panagopoulos. 2022. “The Economic Impact of Recreational Trails: A Systematic Literature Review.” *Journal of Ecotourism* 21 (4): 366–93. https://doi.org/10.1080/14724049.2022.2030745.

Maller, Cecily, Mardie Townsend, Anita Pryor, Peter Brown, and Lawrence St Leger. 2006. “Healthy Nature Healthy People: ‘Contact with Nature’ as an Upstream Health Promotion Intervention for Populations.” *Health Promotion International* 21 (1): 45–54. https://doi.org/10.1093/heapro/dai032.

Matteson, Cory. 2021. “New Power Generation.” *Rails to Trails*, 2021.

McLoughlin, K T. 2002. “Integrated Vegetation Management: The Exploration of Concept to Application. In: Goodrich-Mahoney JW, Mutrie DF, Guild A, Editors. Proceedings of the 7th International Symposium on Environmental Concerns in Rights-of-Way Management. 9–13 September 2000; Calgary, Alberta, Canada. New York (NY, USA): Elsevier Science. p. 29-35.” In *Proceedings of the 7th International Symposium on Environmental Concerns in Rights-of-Way Management.*, 29–35. Calgary, Alberta, Canada: Elsevier Science.

Moore, Roger L., and Alan R. Graefe. 1994. “Attachments to Recreation Settings: The Case of Rail-trail Users.” *Leisure Sciences*, January. https://doi.org/10.1080/01490409409513214.

Morongo Band of Mission Indians. 2021. “Morongo Becomes First Native American Tribe to Be Approved as a Participating Transmission Owner in Nation.” Morongo Nation. July 19, 2021. https://morongonation.org/news/morongo-becomes-first-native-american-tribe-to-be-approved-as-a-participating-transmission-owner-in-nation/.

Mullenbach, Lauren E., Nicholas A. D. Pitas, Joseph Walker, and Andrew J. Mowen. 2018. “‘It Brings the Community Together’: Benefits from Local Park and Recreation Renovations.” *Community Development* 49 (5): 487–503. https://doi.org/10.1080/15575330.2018.1527777.

Nelson, Charles, Christine Vogt, Joel Lynch, and Daniel Stynes. 2001. “Rail-Trails and Special Events: Community Ane Economic Benefits.” In *Proceedings of the 2001 Northeastern Recreation Research Symposium*. Bolton Landing, NY. Nowak, Christopher, and Benjamin Ballard. 2005. “A Framework For Applying Integrated Vegetation Management On Rights-Of-Way.” *Arboriculture & Urban Forestry* 31 (1): 28–37. https://doi.org/10.48044/jauf.2005.004.

O’Shaughnessy, Eric, Jenny Heeter, Julien Gattaciecca, Kelly Trumbull, and Emily Chen. 2019. “Empowered Communities: The Rise of Community Choice Aggregation in the United States.” *Energy Policy*, 1110–19.

Parry, Brian, Justin Gollob, and Jennifer Frans. 2014. “Benefits of Public Land Usage: An Analysis of Outdoor Recreationists.” *Managing Leisure* 19 (4): 231–44. https://doi.org/10.1080/13606719.2014.885716.

Pay, John. 2013. “Generating Recreation, Transforming Communities: Utilizing Transmission Power Line Corridors in Regional Greenway Design.” Clemson University.

Petitta, Isabella R., Margarita M. López-Uribe, and Autumn E. Sabo. 2024. “Biology and Management of Wild Lupine (Lupinus Perennis L.): A Case Study for Conserving Rare Plants in Edge Habitat.” *Plant Ecology* 225 (4): 373–89. https://doi.org/10.1007/s11258-023-01371-9.

Potts, Simon G., Jacobus C. Biesmeijer, Claire Kremen, Peter Neumann, Oliver Schweiger, and William E. Kunin. 2010. “Global Pollinator Declines: Trends, Impacts and Drivers.” *Trends in Ecology & Evolution* 25 (6): 345–53. https://doi.org/10.1016/j.tree.2010.01.007.

Rails to Trails Conservancy. n.d. “Trails and Utilities.” Rails to Trails Conservancy. Accessed October 22, 2024. https://www.railstotrails.org/trail-building-toolbox/utilities/.

Relph, E. C. 1976. *Place and Placelessness.* Pion.

Russell, K.N., H. Ikerd, and S. Droege. 2005. “The Potential Conservation Value of Unmowed Powerline Strips for Native Bees.” *Biological Conservation* 124 (1): 133–48. https://doi.org/10.1016/j.biocon.2005.01.022.

Smith, Matthew B., David A. Aborn, Timothy J. Gaudin, and John C. Tucker. 2008. “Mammalian Predator Distribution Around a Transmission Line.” In *Southeastern Naturalist*, 7:289–300. https://doi.org/10.1656/1528-7092(2008)7[289:MPDAAT]2.0.CO;2

Synapse Energy Economics. 2017. “An Analysis of Municipalization and Related Utility Practices.” Washington, DC: District of Columbia Department of Energy and Environment.

Theodos, Brett, Rebecca Marx, and Tanay Nunna. 2021. “Community Wealth-Building Models Opportunities to Bolster Local Ownership.” Washington, DC: The Urban Institute.

Ulrich, Roger S., Robert F. Simons, Barbara D. Losito, Evelyn Fiorito, Mark A. Miles, and Michael Zelson. 1991. “Stress Recovery during Exposure to Natural and Urban Environments.” *Journal of Environmental Psychology* 11 (3): 201–30. https://doi.org/10.1016/S0272-4944(05)80184-7.

Wagner, David L., Kenneth J. Metzler, and Henry Frye. 2019. “Importance of Transmission Line Corridors for Conservation of Native Bees and Other Wildlife.” *Biological Conservation* 235 (July):147–56. https://doi.org/10.1016/j.biocon.2019.03.042.

Wagner, David L., Kenneth J. Metzler, Stacey A. Leicht-Young, and Glenn Motzkin. 2014. “Vegetation Composition along a New England Transmission Line Corridor and Its Implications for Other Trophic Levels.” *Forest Ecology and Management* 327 (September):231–39. https://doi.org/10.1016/j.foreco.2014.04.026.

Yahner H. Richard, Richard T. Yahner, and Russell J. Hutnik, 2007. “Long-Term Trends in Small Mammals on a Right-of-Way in Pennsylvania, U.S.” *Arboriculture & Urban Forestry* 33 (2): 147–52. https://doi.org/10.48044/jauf.2007.016.