



Wildlife Habitat Council



Restoring Greenspace: Ecological Reuse of Contaminated Properties in EPA Region 9

Overview of Proceedings
May 14 – 15, 2008

Hilton Concord Hotel
Concord, California

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Robert Johnson, President, Wildlife Habitat Council

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Bob Stephens, Immediate Past President, Multi-State Working Group

Jennifer Smith Grubb, President, Sustainable Silicon Valley

OVERVIEW OF CONFERENCE PROCEEDINGS

On May 14-15, 2008 the Wildlife Habitat Council (WHC) hosted its seventh annual Restoring Greenspace conference in Concord, California. This regional conference was hosted with the purpose of encouraging and enabling the restoration and reuse of contaminated land using wildlife habitat enhancements and community partnerships.

The regional conference presented a first-hand look at innovative programs, new initiatives and case studies that highlighted the incorporation of ecological reuse practices in site restoration activities focusing on the US Environmental Protection Agency (EPA) Region 9. EPA Region 9 includes the states of Arizona, California, Nevada and Hawaii, as well as the various Pacific island jurisdictions, including Guam, American Samoa, and the Northern Mariana Islands.

The conference objectives were to:

- Identify ecological approaches to clean up and the costs and benefits of ecological reuse through case studies;
- Identify performance metrics for success in ecological restoration;
- Assess regulatory challenges to developing ecological enhancements on contaminated properties;
- Evaluate approaches for obtaining constructive & meaningful stakeholder involvement; and
- Determine next steps for EPA Region 9 stakeholders to address issues surrounding the ecological reuse of contaminated properties.

Welcoming Remarks

Marcia Maslonek, Vice President of Programs, Wildlife Habitat Council: Ms. Maslonek welcomed everyone to the annual conference, thanking them for coming and for their commitment to habitat restoration. She also thanked the conference advisory committee, the many conference sponsors and Wildlife Habitat Council (WHC) council staff.

Beginning with the first regional conference held in 2000 in Washington, DC, the annual WHC Restoring Greenspace conference has taken place in almost every EPA region. The goal for the Restoring Greenspace conferences is that all will work together to remove barriers to ecological restoration and enhancement for site restoration at contaminated properties. Since that first conference there have been many successes, setbacks, and emerging issues. Ms. Maslonek noted that the success of the annual conference can be measured by the three over-arching themes of the Restoring Greenspace Conferences: improvements in stakeholder engagement, communication among involved parties and use of innovative approaches to ecological restoration activities. Ms. Maslonek then introduced Scott Kilkenny.

Scott Kilkenny, Vice President for Environment, Health and Safety, Kinder Morgan, Inc, and Chairman-Elect of the WHC Board of Directors: Mr. Kilkenny noted that this is the 20th anniversary of the Wildlife Habitat Council and announced that a “20-20” strategic plan was under development to review the 20 past years and to strategically plan for the coming 20 years of WHC activities to foster creation of wildlife habitat. Mr. Kilkenny cited the importance of using the Restoring Greenspace conference to identify techniques for overcoming obstacles to land revitalization for habitat, and achieving win-win solutions among stakeholders. The conference is an opportunity for dialogue and idea exchange. Panelists will be providing presentations, but the focus of the sessions will be to open the sessions for dialogue.

Mr. Kilkenny described his experiences at Kinder Morgan, Inc, working with public schools, and community neighbors of corporate operations to establish pollinator-friendly gardens, develop fire prevention strategies, develop watershed protection approaches, and increase bio-diversity, even on small parcels of land. Corporate employees have devoted a lot of time in support of these WHC-initiated programs and have succeeded in improving the ecosystem services provided by company and neighboring lands. With 100 volunteers, over 5,000 trees have been planted by Kinder Morgan efforts, enough to compensate for the “carbon footprint” of all their Colorado corporate employees in

a “Go Zero” environmental improvement program. Kinder Morgan’s most successful projects are those with the greater number of people involved. Partnerships and alliances, even outside the company’s fence lines, in cooperation with communities and regulatory agencies to foster habitat creation have changed corporate relationships with these key stakeholders and have helped provide new wildlife habitat even along Kinder Morgan pipelines on land the company does not itself own. Restoration projects should not just be limited to what can be done on “the back 40”. Mr. Kilkenny expressed a desire to focus on synergistic regional approaches.

In November, WHC will host its annual symposium. This will provide an opportunity to contribute to WHC’s next 20 years. In 20 years, the importance of WHC programs will lead to even more accomplishments in land restored for wildlife habitat, education and green space.

Overview of Conference Objectives

Steve Rock, Environmental Engineer, EPA National Risk Management Research Laboratory: Mr. Rock noted the great diversity in backgrounds and training among conference attendees and described his personal experiences in “how to get things done”. Mr. Rock described examples of successful corporate, government, other stakeholder interactions to produce “eco-reuse” opportunities for contaminated lands where wildlife habitat can go hand-in-hand with clean energy generation and recreational land uses. For example, a bicycle path along a landfill has no benches in order to encourage riders to use, but not to stop and rest on, the landfill area. EPA is also looking for waste sites where remediation and reuse can include wind and thermal energy generation activities. Mr. Rock indicated that WHC has a definitive role with eco-reuse projects as they can point out the difference between changing habitat versus improving a habitat.

Mr. Rock cited three over-arching themes to assist in “getting things done” a la Robert Moses. These are: 1) Drive the first stake; 2) Give away the credit to others for the project; and 3) Build an in-house team. He noted that sooner or later, all projects run out of money and so getting the first stake in the ground in a key project area can be critical to obtaining additional resources. He encouraged use of simple field analytical approaches to identify parts of large sites that may not be contaminated or have minimal contamination problems to begin restoration projects early, even in the site assessment phase, and to better direct the more costly assessment work. Contaminated sites are not all equal with regard to risk involved, current value or opportunity for ecological reuse.

Mr. Rock noted the availability of expertise in WHC and in government agencies that may be tapped by corporate and other land owners in assessing and restoring sites, and noted the importance of using the words “or equivalent” within the regulations governing RCRA site caps to allow for alternative remediation approaches. Mr. Rock discussed the Alternative Cover Assessment Program (ACAP), an assessment of alternative landfill final covers conducted by EPA’s Superfund Innovative Technology Evaluation Program. The goal of ACAP was to collect and evaluate field-scale performance data for landfill final cover systems. Both prescriptive (traditional RCRA) and evaporation-transpiration caps were tested in the project. Evapotranspiration type landfill covers utilize plants to cycle water from the soil profile to the atmosphere during the growing season thus minimizing year-round drainage from the cover system. Such landfill caps could foster wildlife habitat creation while providing a cost savings for closure at landfill sites. He shared his data and experiences finding that traditional RCRA capped, clay-lined landfills are far more susceptible to leakage, far more permeable, and far more likely to fail than expected during their design.

Keynote Session

Maureen F. Gorsen, Director of California Department of Toxic Substance Control: Ms. Gorsen provided an overview of California’s “Green Chemistry” initiatives. She identified “three waves” of environmental protection: Wave 1 was conservation approaches associated with John Muir in California and Teddy Roosevelt, Wave 2 was the finding that “wastes are hurting the environment” initiated by Rachel Carson, and Wave 3, which is just beginning, is the need to “look upstream” in manufacturing and other societal activities to avoid introducing environmentally-harmful substances into products, foods, and all aspects of our lives.

Central to this third wave of environmental protection is the question: “How are we going to design our way out of this?” More and more consumer products are generated in a laboratory. As examples, Ms Gorsen noted that carpets might contain toxic glues which contain endocrine disrupting chemicals and that some jewelry might contain large amounts of lead. Ms. Gorsen cited the book “Green Chemistry” by John Warner and Paul Anastas as leading “Wave 3” by citing the importance of consideration of public health and the environmental effects of chemicals during the design of products and processes. The thrust of this approach is to design chemicals which are infinitely sustainable. It presents a fundamentally new “upstream” approach to environmental protection which could fundamentally change our consumer society. Such a multi-media, life-cycle driven

paradigm moves the focus of environmental regulatory agencies from enforcement at end point/discharges to avoiding generation of the waste stream in the first place.

California is the first state working to create a statewide baseline biomonitoring population database for establishing average chemical body burden. The results of this biomonitoring are anticipated to be available in four to five years. California has now rolled out the Green Chemistry Initiative. As part of this initiative, Ms. Gorsen is responsible for conducting public outreach sessions to collect ideas on how to stimulate the Green Chemistry approach. This will inform the analysis and recommendations of the Department of Toxic Substances Control, which are due to be submitted to the Governor's office by July 1, 2008. Ms. Gorsen noted that the results of the extensive outreach efforts are available on the web at www.dtsc.ca.gov (click on the "green chemistry" tab).

Lunch Speakers

Antonia K. J. Vitter, Site and Groundwater Cleanup Program Manager, California Central Valley Regional Water Quality Control Board: Ms. Vitter presented a remediation and restoration project case study of the "Humboldt Road Burn Dump" in Chico, California. This site was considered a legacy waste dump site as it was used before World War II as a dumping area for domestic, commercial and industrial wastes. The site had multiple landowners and high lead concentrations as well as the endangered plant species, the "Butte County Meadow Foam". Ms. Forester described the conflicts over land uses, the need to restore and protect an ephemeral stream and wetlands at the site and concern by the City of Chico over development encroaching on the dump site. The site was remediated at a cost of over \$10 million, with over 400,000 cubic yards of contaminated materials consolidated in an on-site cell and through management of water levels. Ecological enhancements were implemented as part of the remediation efforts to include restoration of the creek bed, rehabilitation of some areas by planting approximately 200 seedlings, and use of regionally native vegetation. The project is an ecological restoration success story.

Rob Busby, Senior Engineering Geologist, California Central Valley Regional Water Quality Control Board: Mr. Busby presented a case study of "The Life and Times of Spencerville Mine" in Nevada County, California. Mr. Busby described the historical uses of the contaminated area as a copper mine (from 1862 until 1918) and then as a military reservation, Camp Beale, after 1918. In 1966, the site became a wildlife refuge. The contaminated areas of concern included low pH acid pits as well as mine waste tailings piles. Remediation of the site included relocation of Little Dry

Creek into its original channel, neutralization of the acid pits, and re-contouring and re-vegetating of the land. The resulting effort restored the site and promoted wildlife habitat, including restoration of Little Dry Creek for fish passage. The project remediation costs were approximately \$7 million. The project received the Governor's Environmental and Economic Leadership Award for Watershed Restoration.

Field Trips

Restoring Greenspace conference attendees participated in two excellent Bay-area field trips to view first hand the opportunities and experiences in land restoration within the metropolitan area.

DOW Wetlands Preserve

An exemplary project for incorporating ecological enhancements on a corporate site, the DOW Wetlands Preserve, located in Pittsburg, California, provides for viable and productive aquatic and terrestrial habitat collocated with one of the west coast's largest chemical manufacturing facilities. Situated on the edge of the San Joaquin River Delta, the wetlands preserve encompasses over 470 acres of restored wetlands. The sites' diverse range of habitats, including freshwater/brackish tidal marsh, freshwater ponds, open water, mudflats, riparian zones and grasslands provide a great place for wildlife and environmental education. The site was designated as a WHC Signature of Sustainability project as well as was a recipient of an EPA Five-Star Restoration grant for being an excellent example of bringing both community and industry together in reusing a corporate site.

Initially DOW's objective for acquiring the adjacent parcel was to prevent encroachment upon their facility by other uses and development efforts. The success of the project is driven to a large degree by the variety of committed stakeholders engaged in active restoration and educational activities at the site. The DOW Wetlands Environmental Team is comprised of retired and current DOW employees who volunteer their time for maintenance and improvements at the preserve. The East Bay Conservation Corps comprised of socially and economically disadvantaged youth from Oakland, is also a partner providing manpower for habitat restoration projects. The DOW Wetlands Preserve also serves as a living classroom for many secondary and college students throughout the Bay area. As a community resource, this site serves as a model for other corporate enhancement projects.

Napa, California Salt Ponds and Hamilton Wetland Restoration Projects

The benefits of large scale ecological restoration efforts were evidenced by visiting the Napa Salt Pond restoration project. Along the Napa River, former salt evaporation ponds managed by Cargill, Inc. are being restored to their pre-industrial state as productive wetlands and tidal marshes. Over 10,000 acres of wetlands will be restored in this long-term project which demonstrates the value of stakeholder involvement and partnerships among organizations to achieve ecological restoration of contaminated land, in this case, partnership among Ducks Unlimited, Inc., Cargill Salt, Inc., California State Coastal Conservancy, California Department of Fish and Game, California Wildlife Conservation Board, and others.

To achieve the restoration objectives, a planning and management process initiated in 1999 and completed in 2004 provided researchers and stakeholders with an evaluation of existing conditions in the salt ponds, and the feasibility of reducing salinity and improving habitat conditions through a phased restoration approach. The objectives of the preferred restoration alternative are: restore tidal marsh functions and values, improve critical managed-wetland units, increase endangered species habitat, reduce hyper-saline conditions in water released from the former salt ponds to achieve ambient NAPA River saline levels, and provide flood relief. Issues arising during the restoration process have included concern over the potential for returning shore birds to strike aircraft using a nearby small airport and concern over new vegetation converting mercury in sediments (from 19th century upstream mining operations) into bio-available methyl mercury.

The second part of the field trip, the Hamilton Wetland Restoration Project, was canceled due to traffic. This project site at the former Hamilton Air Force Base on the San Pablo River is a large scale joint venture between the US Army Corps of Engineers and the California State Coastal Conservancy. These agencies, and other collaborative partners, are working to return the former wetlands to its natural state. The project represents an unprecedented opportunity to restore the ecological health of the San Francisco Bay, which has lost over 85 percent of its wetlands since the 1880s. The project encompasses three main objectives: (1) create a diverse array of wetland and wildlife habitats that benefit a number of threatened, endangered and other species, (2) reduce inwater disposal of dredged material and beneficially reuse dredged materials when feasible, and (3) facilitate the base-closure and reuse process of the former Army Airfield.

The 988-acre project site is comprised of two parcels of land that will be managed as two phases of the project: the former Airfield and the north Antenna Field. The Corps is currently preparing the Airfield to accept dredged sediment a key aspect of the restoration project, while the Antenna Field awaits a final environmental cleanup. Eventually, both sites will be linked to the Bay via tidal

channels. Immediately north of the project site is the 1,600-acre Bel Marin Keys area, expected to be added as a third phase of the project upon Congressional authorization. This addition will expand the total project site to nearly 2,500 acres.

Breakout Session Set 1:

Ecosystem Services and Performance Metrics

Establishing metrics and performance standards requires consideration of a wide array of different values and functions that depend upon the specific habitat and their relationship to surrounding natural and human environments. While ecosystem services have obvious non-economic value, determining valuation and creating economic markets for ecosystem services is more challenging. This panel examined techniques for encouraging and measuring eco-system services to help define a successful strategy for implementing ecological enhancements in ecological restoration projects.

Sheryl A. Telford, Business Team Manager, DuPont Corporate Remediation Group noted that DuPont is the oldest company on the New York Stock Exchange and owns a lot of property with legacy contamination. “Sustainable growth” is a DuPont mission which will lead to increased value of land and reduced environmental footprints at these properties. Metrics currently in use, measured annually at DuPont for the sustainable growth mission include greenhouse gas reduction, water use reduction and energy use reduction. DuPont seeks innovative approaches to improve these ecosystem services and allow the company to remain profitable.

The innovative approaches to enhance ecosystem services and allow continued profitability, termed “business drivers” include the following examples:

- At one Delaware Bay location, both fishermen and migratory birds compete in their use of horseshoe crabs. Birds eat crab eggs but fishermen use the crabs as bait. DuPont has developed a profitable substitute product that fishermen can use as bait, allowing the migrating birds to eat the crab eggs, benefiting the ecosystem.
- Land values provide a second business driver. DuPont recognizes that many large properties vary in their degree of contamination and need to be viewed on a parcel-by-parcel basis within the property. Lease options, the ecological value of parts of properties, and the community value of parts of properties are all captured in a new GIS based data

system which characterizes the habitats and infrastructure of each parcel of property. WHC can assist companies in characterizing the industrial, commercial and conservation uses of their properties. Some companies may not be aware of the tax credits they might obtain using the conservation/ecological values of parts of properties they own, and WHC can help in defining these values.

- Innovative responses to regulatory issues can be a third “business driver” supporting ecosystem services. For example, in New Jersey, a State formula to measure groundwater natural resource damages is in use. In view of this, DuPont looked at the groundwater recharge values of their properties and put some properties into State-registered conservation easements providing value that was used in settling natural resource damage claims with the State.
- Planning for likely future regulatory issues provides another business driver for enhancing ecological services. For example, creating habitat and green space when restoring properties in urban areas creates land with durable ecological values prized by communities which might be useful to a company in future regulatory trade-offs. WHC can help in creating such habitat-friendly restoration plans for urban brownfields.

Ms. Telford described several future challenges to enhancing ecosystem services provided through DuPont’s “sustainable remediation” efforts. These include: recognizing that ecosystems do not always follow political boundaries...watersheds, for example, might cross several state lines and involve multiple federal agencies in their restoration; identifying the local and regional values that ecosystems provide, not just focusing on the very macro eco-issues, such as climate change; communicating in an understandable way the values that ecosystems provide (WHC can assist by providing the toolkits on how to communicate the values of ecosystem services to stakeholders); thinking “less vertically and more horizontally” in brownfields restoration to build fewer buildings and more habitat, to provide a win-win situation even in urban areas.

Jay Truty, Partner, DLA Piper US, LLP discussed the importance of shifting from command-and-control approaches to use more market-based incentives to achieve environmental goals. For example, the carbon sequestered through creation of habitat as part of a brownfield restoration can provide economic incentive for land restoration if the stored carbon can be traded for other items of value. Carbon has the potential to create a global market with a measure that is the same all over the world, an “ecosystem market” to replace historic regulatory approaches to environmental cleanup.

Mr. Truty also described the importance of linking departments within companies, for example, fostering communication between the real estate department and the environmental department to promote innovative thinking on uses of company properties and to help measure the ecosystem services that company lands might provide, measured, for example, in terms of their “water purification value”, “cultural services”, “recreational services” and perhaps “food services” (e.g., crop yield per acre of land). Companies fostering such communication may see innovative uses of their property which can enhance their position in addressing environmental regulatory requirements. This is especially true for rural properties where these ecosystem services can be used in trade, for example, at a large utility company-owned property which was able to use the water purification value of its land in discussions with a state regulatory agency regarding air emissions issues. WHC and other non-profit organizations can assist in identifying these habitat-related land values and in finding new areas where such trade-offs might be fruitful.

The panelists and conference attendees discussed several issues relating to the “Ecosystem Services and Performance Metrics” topic including:

- “Regulatory agency segregation” which impedes discussion across the “stove-piped” agency organizations which are set up to address the various media-based environmental laws;
- Whether command-and-control regulation can ever be entirely replaced by emerging market-based environmental considerations;
- How ecosystem services enhancement as an outcome of environmental agency actions may substitute for historic “risk-driven” approaches for action;
- The need to document and communicate the emerging body of practice in the area of valuing ecosystem services. Organizations such as WHC have a role in creating tools for facilitators, and educational tools to foster enhancement of ecosystem services as an outcome of environmental restoration efforts.

Wetlands Restoration

Our nation’s wetlands are disappearing at an alarming rate. The critical role of wetlands in our environment and economy make it vital to seize any opportunity to restore them. This daunting task can only be accomplished through partnerships and effective stakeholder communication. This panel examined the science of wetlands restoration, proposed policy changes and impacts of proposed policy changes, and available resources and partners.

Jim Myers, Senior Environmental Engineer, Chevron provided insight into his experience with designing, building, and operating constructed treatment wetlands. Mr. Myers provided a run down of the Top 10 things you should not do when restoring a wetland. This included advice on: bad budgets and unrealistic designs; not planting non-native species; doing soil mechanics and chemistry homework; doing a 'no water balance'; design restoration projects by objectives and include both biologists and engineers; planning for herbivores; knowing the elevations for the project; doing a pilot project before constructing the overall project; simplifying the water control structures for operation; conducting monitoring and having controls for plant succession in a completed restoration project.

Greg Green, Regional Biologist, Ducks Unlimited focused on the merits and methodologies of engaging a wide array of partners for wetland restoration projects, specifically increasing opportunities to work on private corporate lands, for establishing joint ventures, and for working with non-governmental organizations. Regulators have established targeted areas for migrating waterfowl as identified in regional bird conservation areas. At this point, the majority of protected wetland areas are already under Federal control. There is a need to now enlarge the area of protected waterfowl migration lands to "unused" areas comprised of corporate owned lands in targeted coastal zones. There are many incentives for corporate involvement in wetland restoration and preservation activities. These incentives include: providing positive ecological benefit, possible reduction of operating costs (native plants, less maintenance intensive), opportunity to provide interpretation for public education, tax benefits (conservation easements can be used), leveraging possibilities as funding from corporate donation can be used to leverage other sources of public sector funding, potential for increased employee moral and good neighbor goodwill, opportunity of environmental credits/ carbon credits, and emerging potential for synergistic coordination with adjacent landowners. Mr. Green also indicated that the future of wetland restoration was one where regionally focused joint ventures provide a higher impact using a multi-stakeholder approach for implementation of waterfowl conservation goals.

Bill Carson, PE Principal Engineer, LFR, Inc. presented a wetlands mitigation case study in highly urbanized Berkley, California. The project is an offset of a 2.1 acre wetland in Oakland that was deemed a low quality, isolated wetland not under the jurisdiction of the US Army Corps of Engineers or the State of California. The large, multi-county park district of East Bay Parks was enlisted as a

partner. Other partners included California Parks and Recreation, California Regional Water Quality Control Board, Developers (Cherokee and others), Environcon, and LFR. The mitigation was done on a portion of parkland that was ecologically degraded and included an old landfill and seasonal wetlands. The resultant public/private partnership project had many benefits: 16 acres of restored greenspace in urban area park, facilitation of a developer-driven project in Oakland with increased tax revenue for the city, improved quality to wildlife habitat, and established fenced-off walkways allowing for public access with minimal impact to habitat.

The panelists and conference attendees discussed several issues related to the “Wetlands Restoration” topic including:

- Pet Peeve: No wildlife credit for constructing treatment wetlands;
- Policy does not allow for “stacking” credits;
- Mechanism for keeping stakeholders engaged once construction is complete could include:
 - Ducks Unlimited has cost share post-construction program
 - Keep public involved with activities such as hosting a volunteer day
 - Linking project to educational opportunities;
- As wetlands restoration projects age, consideration needs to be given to keeping stakeholders engaged and long term operation and maintenance;
- The future of wetland restoration projects will need to take into consideration:
 - Siting of projects in context of climate change
 - Less dredging needed and new sources of “mud” may be needed
 - Fresh water sources will be needed
 - Get Conservation easements and Acquisitions done NOW to prepare for future land demands

Breakout Session Set 2:

Long-term Stewardship

With many site cleanups reaching completion and new State and Federal Brownfields laws enacted, there have been exciting new developments to address the expectations of land trusts and reassure communities of the long-term viability of site remedies. This session included discussions of current insurance programs to help manage long-term liability, as well as issues associated with implementing and tracking effective land-use controls.

Bob Wenzlau, CEO and founder of Terradex, Inc. explained that Terradex, Inc (www.terradox.com) provides third party monitoring of land uses around contaminated properties and then provides alerts before unsafe land uses occur. His firm currently monitors actions affecting land throughout the country, including over 400,000 acres of land across California, collecting data from 160 cities on zoning, land transfers, well permits, etc. He explained that while government agencies are good at collecting data describing land uses (e.g., data on deed restrictions), these agencies are not in the practice of actively monitoring or enforcing or alerting others when actions are taken that might affect deed restrictions or other institutional controls. Mr. Wenzlau described stakeholders with interests in monitoring institutional controls as “vested” stakeholders, including responsible parties, regulators and land owners and “consequential” stakeholders, including tenants, local governments, natural resource trustees and others in a community who might be affected by a site’s conditions. With local government involved in many other high priority activities, including day care, real estate issues, law enforcement, safety, etc., there is often a need for an attentive third party to serve as a “stewardship tool” to keep track of those local government activities which might impact conditions, including institutional controls, at a restored property. Establishing partnerships is especially important to ensure monitoring of institutional controls at sites restored as habitats, since the commercial resources for such monitoring might not be as readily available as at sites restored for private, residential, commercial and industrial uses. Mr. Wenzlau provided demonstrations of the web-based, “Google earth” systems in use by Terradex, Inc. to track land uses and land use restrictions at sites throughout the country and described successes in warning stakeholders of planned inconsistent uses at sites, preventing well drilling and digging at inappropriate locations.

Michael R. Strong, Attorney-at-Law, Jenner and Block LLP, discussed several positive “drivers” that can lead to increased use of habitat as the long-term use for a restored brownfields site: 1) regulatory drivers; 2) public relation drivers; 3) stockholder demand as a driver; and 4) economic drivers. Regulatory drivers include the capping-and-trading of air emissions “offsets” that might encourage restoration of habitat at one location in an offset exchange for air emissions at another

location. Public relation drivers for the creation of habitat as a long-term land use include positive public relations with neighboring communities. Stockholder demands and perceptions which steer companies toward more responsible long-term stewardship of land lead to habitat uses are a third driver. Economic drivers include accruing future carbon sequestration credits for land used as habitat and green space. Mr. Strong stressed the importance of creating written agreements among stakeholders involved in establishing partnerships to foster the long-term stewardship of land. Such agreements need to set out the roles and responsibilities of all parties to help address the disputes and issues that are likely to arise in these partnerships.

Dr. Lisa McLaughlin, Assistant Superintendent, Western Heights Public Schools District, Oklahoma City, OK, presented a case study of land with a Wildlife Habitat Council certified habitat which had been donated to the Oklahoma City school district by the Bridgestone Firestone Company, after achieving “RCRA clean closure” status, requiring no additional monitoring by regulatory agencies. The conditions of the land donation included the requirement that the habitat portions of the land (40 of 60 acres) be maintained as habitat and these areas are planned for use in student education by the school district which serves a low income, “challenged” area of Oklahoma City, OK. In addition, other parts of the donated land will allow construction of additional school facilities.

The panelists and conference attendees discussed several issues related to the “Long Term Stewardship” topic including:

- Forming partnerships to secure the expertise and resources needed to monitor, track changes and maintain restored land that serves as habitat;
- Programs such as WHC’s “Corporate Lands for Learning” efforts which can assist long-term stewardship efforts;
- The need for educational and outreach tools to assist understaffed local government organizations; and
- The role of EPA and state environmental agencies in providing resources and expertise and as agents in fostering partnerships to assist in long term stewardship of land serving as habitat.

Integrating Natural Resources Damage Assessment with Site Cleanup

Site cleanup programs strive to overcome the significant challenge of integrating the processes of remedy selection, design, and construction with those of natural resources damage assessments (NRDA) and restoration. The session examined how critical long-term goals of remediation and

restoration can be successfully accomplished, while avoiding sequential processes, at many complex contaminated properties.

Mike Ammann, Ecologist and Staff Engineer, Chevron provided insight on developing strategies for managing natural resource damage liability. Mr. Ammann felt that one of the biggest challenges associated with the topic was to get biologists and engineers to work together to coordinate and integrate NRDA with site remediation activities. Key questions that need to be pondered include what is in it for the responsible party and how does one achieve the benefits envisioned? Semantics plays a role in NRDA discussions. Integration is not what is needed; site remediation should be 'coordinated' with NRD assessment. Such a cooperative approach makes sense given site remediation efforts typically take 10 years or more. From a responsible party perspective, it usually makes sense to approach Trustees and get the NRDA issues on their radar screen as soon as possible. A corporate bottom line would benefit with engaging and starting NRDA process concurrently with site investigation/remediation planning. Mr. Ammann discussed other benefits of coordination to include getting to restoration activities sooner; taking advantage of collateral restoration opportunities on the targeted site, an overall reduction of both responsible party and regulatory costs, and providing a better deal for the public. Benefits can be achieved by sharing data between parties conducting the remedial investigation and the trustees evaluating the NRDA issues. If there are data gaps, NRDA data collection activities can be piggybacked off of site assessment data collection activities. Most importantly, the Trustees should be involved with the feasibility study to ensure a coordinated approach with remedial actions.

Dr. Greg Biddinger, Natural Land Management Program Coordinator, Exxon Mobil provided additional industry perspective. NRDA work is currently set up to create an atmosphere of adversity: the responsible party is put on the defensive by the process and the regulators would rather be participating in something that is more positive. Often there is not a baseline or empirical data set to establish the risk versus the natural resource injury. Projecting the uncertainty associated with the injury determinations creates a starting point rife with conflicting calculations and positions. The NRDA realm is evolving. States have picked up on the concept that 'one size does not fit all' and so are tailoring the NRDA approach to make it their own. Proposed Department of the Interior NRDA changes shift the emphasis from valuation of dollars to one that provides a framework for project implementation to include habitat restoration. This has the potential to really morph NRDA assessments into what will work. Another preferred approach would be to expand Phase I assessment work to include an investigation of sociological and ecological considerations. Such an

approach allows for managing the risks within the context of future use. Working with the community to identify reuse considerations should be done with the initial investigation.

Dr. David Charters, Eco Risk Assessment Expert, EPA Environmental Response Team provided the perspective of EPA on NRDA. Dr. Charters stated that EPA has no authority under NRDA, and EPA is not a Trustee. The Agency's authority lies solely within the realm of remediation. The responsibility for NRDA lies with the Trustees. EPA has a duty to coordinate with the Trustees as they must inform the Trustees when they find sites and then should coordinate risk data collected. Per Federal legislative requirements, the costs associated with assessing a natural resource loss can not be borne by EPA; the Agency is precluded by law for expending any resources on NRDA assessment. As such, EPA will not enforce or order a responsible party to collect NRDA data if doing so goes above and beyond what is required for remedial investigation work. Dr. Charters felt that placing EPA between the Trustees and the responsible parties creates false expectations and confusion. Dr. Charters was quick to point out that EPA is involved with 'green remediation' which appears to be exactly the same as resource restoration activities. Additional information on 'green remediation' can be found at <http://www.clu-in.org/>

Greg Baker, Environmental Scientist, NOAA provided an overview of the NRDA process and provided the prospective of a Trustee on NRD issues. NRDA is sometimes viewed as a mechanism for green space creation, but it is really a small piece of the overall picture of what needs to be done. Once a release occurs on a site, the Trustees work to establish a pre-release baseline of habitat resources. Once a release occurs there are two things which need to be quantified; damages which are equated to a dollar amount and degradation of natural resources which is equated to an interim loss of services. NRDA aims to quantify natural resource injury and how one would restore it. Initially the regulations were more prescriptive as the focus was placed on financial assessment. There is a shift in the field as NRDA actions are now more driven by restoration planning. Several pitfalls may be associated with coordination of NRDA with remedial investigation work, as it is too easy to say more data is needed which could increase investigative costs. One of the trickiest issues associated with restoration activities resulting from an NRDA settlement is the underlying fact that all politics is local. Hazardous wastes sites could be located in one area and the NRDA settlement restoration site could be located in another community; local communities near the site of the damage may not like the perception that the settlement funding is being spent elsewhere.

The panelists and conference attendees discussed several issues related to the "Integrating NRDA with Site Cleanup" topic including:

- Communication to the public is essential;
- A Stakeholder Best Practices in NRDA is needed;
- Start the process with an understanding of ecological resources and community vision;
- A change is needed to provide EPA with a mandate to have natural resource restoration as a core mission within the Agency;
- There is a need to shift focus with NRDA to: "What is the benefit to the community?";
- There is a need to systematically collect community information and conduct public opinion research.

Lunch Session:

Elliott P. Laws, Senior Counsel, Pillsbury Winthrop Shaw Pittman, LLP

Mr. Laws outlined a proposal for the Recovered Property Protection Assurance Trust (R-PAT), an idea for new federal environmental legislation that would provide long-term liability relief for owners of brownfield properties and a government-managed trust fund which would serve to implement the long-term engineering and institutional controls at such properties. R-PAT would be a federal government corporation, established in a similar manner to the Federal Deposit Insurance Corporation or the Pension Benefit Guaranty Trust Corporation. For a fee paid by property owners, R-PAT would assume the long-term environmental liabilities for sites remediated under Federal or State cleanup programs.

Final Plenary: Making a Case for Ecological Enhancements: A Regional Action Plan

Robert Johnson, President, Wildlife Habitat Council

Marcia Maslonek, Vice President of Programs, Wildlife Habitat Council

Several themes emerged during the two day conference, which could lay the groundwork for not only a regional action plan, but also for WHC's strategic plan for moving forward in the next 20 years. As the remediation and restoration movement shifts away from a financial focus that quantifies damage to one that focuses on restoring viable ecology, it is becoming more apparent that the underlying

impetus for any action plan is the continuing importance of re-using brownfields and other contaminated lands for wildlife habitat purposes, as the concern over the loss of plant and animal species world-wide emerges as a primary objective for site cleanups. There is a continued need for WHC to help educate and coordinate among stakeholders to foster increased use of land for habitat purposes. Stopping habitat degradation and species loss is paramount to future life.

Several issues were identified as commonalities for the various panel discussions. Central to the success of habitat restoration projects was the involvement of the community. In case study after case study, panelists and the attendees acknowledged that the community is critical in allowing projects to move forward. It is therefore important to identify the "community", recognize that the community may not be represented by a single voice, and ascertain what it is that the community feels would be a beneficial outcome for any proposed restoration project. It was felt that sustainable, holistic approaches need to recognize the connectivity and synergies which could be capitalized when taking a regional approach to community engagement.

Related to community is the importance of establishing a network of other stakeholders to be viewed as partners. Due to the immense nature of contiguous land holdings, corporate landowners are key to habitat restoration. They have the ability to spearhead projects, but they should reach out to others for implementation. It was suggested that other governmental and non-governmental entities, such as the Audubon Society, EPA, the National Wildlife Federation, and Ducks Unlimited, should be engaged for projects. Together, everyone can become part of the solutions associated with stopping habitat and species loss.

Directly related to both community and other stakeholder engagement is communication. It was stressed that is important to share information among stakeholders. Transparency in the process is critical for building trust and facilitating communication.

With an eye toward the future, several emerging issues were identified and discussed in the open forum. In prior years, the focal point of discussion had been about increasing greenspace. This year's EPA Brownfields conference had many sessions about restoring greenspace, with only one session dedicated to actually restoring habitat. Many of those in attendance felt that there is a need to evolve the concept of greenspace restoration to one that mainstreams the concept that habitat restoration is a need above and beyond just the creation of open space. On a similar vein, carbon sequestering has overwhelmed other topics that have been on the environmental agenda. Habitat and biodiversity is critical, yet is being overlooked.

Another challenge discussed was that of the role of EPA. EPA management is focused on cleanups. Ecological restoration is EPA's business whether they recognize it or not. It was suggested that a paradigm shift is necessary in the Agency: culture changes and even legislative changes are needed to instill a mandate for EPA to be a proponent of habitat restoration.

Several action items emerged from the final plenary discussion. As the concept of creating green space matures, now is the time for corporate America to operationalize creation of habitat. As such, there is an opportunity for WHC to build capacity to further advance the WHC role of facilitator of ecological enhancements. Meeting two times per year is not enough to build the needed capacity. It was suggested that a strategic plan be developed, and then a subsequent tactical plan, for establishing working groups and teams for furthering WHC's mission. Specific action items included:

- Holding ecosystem services forums: Such workshops could be held as informal gatherings at company locations. An initial meeting to further develop the concept should be held with potential partners.
- Convening a group to support EPA ecosystem services platform: EPA's Office of Research and Development is working on creating a web-based platform for ecosystem services. WHC could facilitate its use by establishing a working group of stakeholders to generate dialogue and identify some pilot projects. Resources for such activities could be leveraged with inclusion of other entities such as the Gund Institute and The Nature Conservancy. Ecosystem services workshops hosted by other entities, such as the USGS, should also be investigated. Greg Biddinger and Sheryl Telford volunteered to assist with Wildlife Habitat Council facilitating such a forum.
- Assisting with defining the language: "Green" and "Sustainable" have become well entrenched buzz words, but what do they really mean? Establishment of a meaningful definition is integral to dissemination of information in an easily accessible language. It was suggested that WHC can work with other groups to improve the type and level of communication.

The Path to Washington- Convening Leaders for an Ecologically Sustainable America

Bob Stephens, Immediate Past President, Multi-State Working Group
Jennifer Smith Grubb, President, Sustainable Silicon Valley

To close out the conference, the Multi-State Working Group managed a discussion as one of its 36 national dialogues to explore a new era of ecological laws as part of a long-term project, "The Path to Washington". This is a three year effort to produce a new set of legal and policy tools to apply to serious environmental problems, improve ecological conditions, sustain communities, and improve everyone's quality of life.

Four questions framed the dialogue:

- What are the ecological needs of a locality, region or state?
- What National policies are needed to support leveraging environmental leaders or others to help meet those needs and prevent abuses of any new system?
- If Washington does not act, what can be done now in communities and states?
- How can citizens help meet these needs?

The discussion included many suggestions and meaningful input for the effort, including:

- A "NEPA-like" approach will need to be part of more and more societal and business decisions;
- There is a need to think about and quantify what is needed to sustain an ecosystem;
- The importance of building bridges among diverse stakeholders to educate more people of the importance of ecological land uses in overcoming habitat loss and biodiversity loss issues;
- The growing tendency of businesses to want to be identified as "going green"; and
- The importance of defining "green" to include "wildlife habitat" in addition to parks, bicycle paths or lawns.