

ute to some larger, clearly defined set of desired environmental outcomes.

The national policy of no-net-loss of wetlands sets a high bar of protection. But we all recognize it does not, by itself, go far enough. We need those acres to be the most meaningful acres they can be so we more than compensate for wetlands we lose and so the significant investments made by public and private entities in compensation projects become an important part of a sustainable environmental future. Mitigation literally allows us to help build our way to sustainability—every development project contributing to a more sustainable outcome.

Yes, defining watershed needs and desired outcomes takes work. Yes, it may require us to stretch how we think about replacing wetland and stream losses “in-kind” by supporting proj-

ects that contribute more functions and values in the larger watershed context.

Yet, the evidence seems clear. We can have more successes like we have had in the Pascagoula River, Mississippi, where mitigation banks contributed 6,500 acres to what is now 70,000 acres of important, connected conservation areas. And the long-leaf pine restoration site outside New Orleans in Tammany Parish, where five different bankers, including TNC, established six different banks that together provide 12,000 acres of habitat, enough to allow controlled burns to be reintroduced to these ecosystems. Or in east Tennessee, where TNC created a bank to help protect and restore over 200 acres of habitat for the bog turtle, part of over 700 acres of protected areas that include enough area to ensure viable populations that have a better likelihood of long-term success.

Or of the memorandum of agreement (MOA) between local, state, and federal agencies, and TNC in southeastern Virginia, which led to the targeting of 6,000 acres of mitigation as part of a 40,000-acre effort to reconnect the Dismal Swamp to the North Landing River—the result of a very specific habitat conservation plan and an MOA among many parties that agreed upon the specific alignment of the desired connection.

The watershed approach may take work, but it is worth the effort. We won't know where we're going if we don't have a map, and we'll never know if we've arrived if we don't have a destination. At its simplest, the watershed approach is about defining clear desired outcomes at the watershed scale and then providing a map about how we might get there. ■

*- Mark P. Smith*

## MITIGATION

# Stacking and Unstacking: The Economics, the Conservation, and the Conversation

The current approach to compensatory mitigation could be limiting additional conservation investment unnecessarily. Stacking and unstacking mitigation credits offers important potential to better capitalize mitigation markets and achieve greater ecosystem services. We call for further dialogue on stacking and unstacking credits to see if greater conservation investment and outcomes can be achieved together.

Stacking, also known as bundling or layering, refers to having approved mitigation credits occur on the same unit of land or water. There is nothing in regulation, policy, or unwritten rules that expressly forbids stacking. Unstacking (or unbundling) occurs where stacked credits on the same unit of land or water are separated out *and* sold to buyers under separate authorities. Hence, more than one credit is sold on the same piece of land or water. This can result in double dipping, where selling one unit of mitigation for more than one impact would not adequately compensate for the environmental loss. However, not all unstacking results in double dipping.

The U.S. Army Corps of Engineers (the Corps) has long considered the Clean Water Act (CWA) §404 authority to expressly prevent un-

stacking based on the assumption that all stacked credits are ecologically linked, despite their separate regulatory authorities (i.e., CWA §404 and Endangered Species Act (ESA)). Early on, when stacking was trialed in California, both the Corps and the U.S. Fish and Wildlife Service (FWS) agreed that with the species and ecosystems considered at the time there was an irrefutable overlap between the wetland and the species' habitat and any attempt to sell the credits separately would be inappropriately selling the same thing twice: double dipping. Articles by Valerie Layne<sup>1</sup> and Steve Martin<sup>2</sup> in this publication describe how these projects in California have been able to develop credits for both wetland mitigation and species conservation in a single bank, with accounting rules to overcome the double dipping risk and avoid any unstacking.

A glance at RIBITS (Regulatory In-Lieu Fee and Bank Information Tracking System) records shows that there are now several banks in California and Florida currently selling more than one credit type as stacked credits. Yet, the right conditions for stacked credits have proved illusive, and formal approaches to stacked credit banks are evolving. Many

have anecdotally expressed interest in stacking ecological services, such as carbon sequestration and water nutrient reduction, yet no such projects have gone on to sell commercially viable credits. However, with more examples of stacked credits now available from which to learn, it may be opportune to revisit the intent of the regulations, advance the practice of stacking credits, and develop a process where unstacking could occur without risk of double dipping. Unstacking might be able to drive greater investment into conservation than stacking alone. A 2008 survey by Jessica Fox et al. (2011) indicated that many in the mitigation industry are very interested in stacking credits.<sup>3</sup> In principle, from ecological and regulatory perspectives, the right conditions for unstacking multiple credits could exist without double dipping.

In light of this, the time has come to revisit those early Californian discussions and assumptions about the application of stacking and unstacking. Robust accounting assures that stacked credits are not oversold or sold to offset more than one impact per parcel. At a minimum, stacking gives bank owners an op-

portunity to diversify. A stack of credits can be marketed and sold to a wider range of buyers, lending a certain economic stability to project finance. And ideally, this kind of diversity can flow through to mitigation project developers investing in a wider range of ecological services to restore and conserve. This is the motivation that has perpetuated interest in stacking so far, being better for business and conservation. The question still remains: how to fully capitalize on this potential and generate more opportunities to stack, and also unstack, credits?

The typical model with stacked wetland and species credits will not work everywhere. In parts of the Midwest or the South, where the newest markets for mitigation currently are, there are few wetland-dependent species. In this case, there are few regulatory or economic tools available to assist if the resources do not naturally overlap, and the lessons from California may be little more than academically interesting. Some might consider California “lucky” in this regard.

The horizon for credits may need to broaden to forest species, carbon, water quality, or streams and associated watershed species. The new Ohio River Basin Trading System, along with trading occurring in the Chesapeake Bay region, illustrates how much interest and potential there could be in water quality trading. In many places, to apply these approaches we wait for the legal framework to enforce specific limits on pollution and then trade these limits in certain water bodies over and above that which the Corps already regulates. Only then would there be stacked credit types to stack. The same may be said for carbon credit potential, where currently only the voluntary carbon offset market is quantifiable.

Biological suitability aside, a template, clear stacking protocol, or guidelines would provide more certainty to regulators and investors alike, encouraging the creation of stacked banks where possible. Layne’s article clearly indicated the potentially complex and technical accounting that may be involved. Though technically feasible, one may question if it is possible to simultaneously implement a generalized-enough approach accessible to all regions and ecosystems, yet specific enough to properly address the very real accounting risks that double dipping occurs according to the biology of the species involved. Assuming such a system is within reach, the economists among us may question the transac-

tion costs of such an approach: is it too complex and too costly to implement and regulate for too little biological or financial gain? So, what is the biological or financial gain?

To actualize stacking’s true economic benefit, *unstacking* may be essential. Some envision that if stacked credits were legitimately generated from the same acre, but not directly linked ecologically or linked by regulation, then selling both credits to separate buyers on that single acre would generate a higher return. Higher returns attract more investment, but also greater interest in restoring more components of that ecosystem. More, better restoration might result if stacking and unstacking were mainstream.

But when practiced in California, a project proponent requiring both credit types may purchase those stacked credits as one mitigation unit. If only one type is required, the other is retired to avoid double dipping upon that acre. So a stacked credit typically sells for only as much as the most expensive credit. Arguably, this stacking offers returns in marketing only: it provides another pool of potential buyers with a different type of impact. Yet, does this Californian approach support a price point, per acre, enough to encourage bankers to invest more in such projects—either financially or in the range of ecological services restored? Although ideally creating a larger conservation pie overall, stacking might instead simply be slicing the pie in a different way. It may offer bankers a competitive advantage to sell a credit with two kinds of mitigation covered (species and wetlands, for example), but this rarely increases the price of this stacked credit above the market price of the most costly of the credit types involved: it is just dividing up the sale of that acre, not adding to it. Bankers will be reluctant to invest more in a stacked credit, if they are unsure they can price accordingly, despite any competitive advantage.

To solve this, perhaps a new ecological credit is required: one credit metric encompassing the ecological attributes and functions of the area concerned, so expanding the ecological restoration within mitigation and conservation credits. If this could be done, then the ecological aspects of this ecosystem metric credit could be reliably unstacked. One could then purchase a portion of this ecological credit according to their impact need. This incentivizes investing more and restoring more, because you can sell more when you do—the win-win situation desired. But such an

ecosystem metric credit would be very expensive to develop, require unprecedented interagency collaboration, and require a highly sophisticated tracking system used by all the regulatory agencies (federal, state, and local governments). Efforts were made toward this in Oregon to better account for the ecological layers, but it had difficulty achieving this level of coordination.

Alternatively, it could be possible to establish credits by separating out ecosystem services according to different regulations and each agency’s natural resource authority. It may be possible to credit ecosystem services more specifically, and properly account for, and prevent, potentially overlapping credit attributes (i.e., risk of double dipping). By looking at each authority under existing regulations currently driving ecosystem service markets and defining which are already incorporated, a new credit may more explicitly identify additional services that can be preserved in credit banks, then sold on another regulatory market. For example, many have been interested in the possibility to separate the carbon sequestration value of CWA §404-credited wetlands, and sell this capacity as carbon credits on the carbon market or water quality credits that are not linked to species habitat protection.

With over a decade of both success stories and cautionary tales behind ecosystem services, it is now fairly clear how to conserve multiple ecosystem services on one piece of land. The stacking of ecological services and credits is not our next stumbling block. The next stage is indeed *unstacking*: how to properly account for each of these service “layers” so that the industry and the regulations may properly attract investment and conservation effort to each layer. This is a better path for ensuring that each aspect of the ecosystem receives optimum investment and optimum ecological outcomes. The opportunity to really expand both conservation and financial backing necessitates that stacking—and more importantly unstacking—continues to be an important discussion. ■

- *Wayne White and Jemma Penelope*

#### ENDNOTES

1. Valerie Layne, *Layering Multiple Credit Types in Mitigation Banks*, 33 NAT’L WETLANDS NEWSL. 8 (Jan.-Feb. 2011).
2. Steve Martin, *An Alternative to Unbundling Ecosystem Services*, 32 NAT’L WETLANDS NEWSL. 27 (Sept.-Oct. 2010).
3. Jessica Fox et al., *Stacking Opportunities and Risks in Environmental Credit Markets*, 41 ELR 10121 (Feb. 2011).