



WETLAND NOTES

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DEFINING WETLANDS FOR LOCAL GOVERNMENTS

As local governments update general plans and experience continuing growth in undeveloped areas, increased local control over wetlands regulation is becoming a potentially controversial issue. Even the first step in local regulation, defining wetlands, is not without disagreement. Selection of a definition may significantly influence land use entitlements and subject a landowner to conflicting constraints on the use of his property.

Typically, a choice in wetland definitions will be made between the U.S. Fish and Wildlife Service ("FWS") *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin, et al., 1979) (hereafter the "FWS Classification") and the U.S. Army Corps of Engineers ("Corps") definition, as found in their 1987 Delineation Manual (hereafter the "Manual"). This article contrast the two definitions and the manner in which wetland delineations are or would be implemented.

First, the Corps and FWS definitions were written for different purposes. The Corps Manual was developed specifically for the delineation of boundaries between wetland and upland habitats for purposes of regulation, and was intended to provide legally defensible, site-specific, wetland boundaries. The FWS Classification, on the other hand, was developed specifically to standardize the naming, or "classification", of wetland and related habitat types within a hierarchical system. The Foreword to the Classification states: "the system [was not] designed to accommodate all the requirements of the many recently passed wetland statutes. No attempt was made to define all the proprietary or jurisdictional boundaries of Federal, State, or local agencies".

Second, the FWS Classification lacks the indicators and diagnostic criteria that are required for completion of a wetland delineation; these are included within the Corps Manual. For example, Skordal

(1994) notes: "While the Classification provides a definition of hydrophytes [wetland plants], and in vegetated systems requires a predominance of hydrophytes, it does not define what is meant by predominance...the Manual does. While the Classification defines hydric [wetland] soils, it does not provide a standard for determining whether a soil is hydric nor does it provide field indicators which can be used to determine whether a soil is hydric. Again, the Manual does both." Because so little specific guidance is provided, delineations completed in accordance with the FWS Classification may vary significantly in accordance with the delineator's training, experience and understanding of the Classification.

Third, the FWS has no system of verifying wetland delineations while the Corps verifies all delineations completed in accordance with its procedures. Corps verification provides an important back-up for local governments concerned with the accuracy of delineations submitted by landowners or others.

Fourth, use of the FWS Classification system and the Corps Manual on the same property may lead to duplication of effort by a landowner and confusion in characterizing wetland habitats for federal and local regulatory purposes. Regulatory agencies that use the FWS system, such as the California Coastal Commission (which uses the system as a "guide"), avoid this problem by accepting delineations done in accordance with the Corps Manual. A local government which adopts the FWS Classification by ordinance will not have this flexibility.

Finally, the Corps and FWS delineation methodologies have been significantly mischaracterized over the past decade and local governments asked to choose between the two are often given inaccurate descriptions of the habitats covered by the two definitions. The primary mistreatment has been in the character-

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ization of the number of "parameters" used in the definition. The same basic parameters (soil, hydrology, and vegetation) are used in both systems. However, many parties have referred to the FWS system as a single-parameter delineation, implying that the presence of soil, hydrology, or vegetation indicators are sufficient to define a wetland. These same parties often refer to the Corps system as requiring the presence of all three parameters. In fact, both systems require the presence of wetland hydrology, which is the defining characteristic distinguishing wetlands from uplands. The Corps system then adds vegetation and soils but also allows for wetlands with neither of these two parameters: newly created wetlands that do not have hydric soils, for example, or farmed wetlands that do not have wetland vegetation. Similarly, the FWS system essentially requires either wetland vegetation or wetland soil conditions in addition to hydrology except in unusual circumstances. Over the past two decades, we have found very few sites that would be defined as wetlands by the FWS that would not also be jurisdictional for the Corps.

With the myriad of federal, state and local agencies involved in land use decisions, opportunities for agency coordination should be pursued. To promote

consistency and fairness in wetland regulation, and recognizing the significance of differentiating wetlands from uplands for land development, local government should use the Corps wetland definition, including reference to the Delineation Manual for mapping wetland boundaries. Use of this definition would result in the accurate identification of wetland habitats while eliminating the potential for misapplication of the FWS definition.

References

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MEETING FLOOD CONTROL AND WETLAND NEEDS:

Evaluating the Laguna Creek Project

The Laguna Creek project, built by the City of Sacramento in 1988, was one of the first drainage projects in the State to contend with stringent wetland regulations of Section 404 of the Federal Clean Water Act. Five years after construction, this project has met almost all environmental performance standards and still meets drainage objectives.

Laguna Creek flows approximately 25 miles through Sacramento County. In this part of California, major storm events transform small creeks into rivers. These conditions are exacerbated by the relatively impermeable soils (primarily stiff clays, often with a hardpan) and the flat landscape (total fall for Laguna Creek is about 1 foot per 400 linear feet of stream).

From the late-1950s to early 1980s farming gave way to urban and higher density residential uses on the lands around Laguna Creek, potentially increasing flood damage. By the mid-1980s, the City was faced

with development proposals from a number of landowners for approximately 700 acres in the southern portion of the City adjacent and tributary to Laguna Creek. A series of drainage plans completed by the Corps of Engineers and other entities proposed channelizing the Creek within a concrete-lined flood channel. However, the City Council chose a modified creek corridor that would attempt to preserve or mitigate for the 98 acres of wetlands on the entire site, including 71 acres of vernal pools, 25 acres of seasonal freshwater marsh, and 2 acres of riparian woodland.

The City also decided to act as the agent for all environmental permitting for this project. In retrospect, this was an important decision; it essentially provided for the creation of a wetland mitigation bank with the City as the agent for the landowners. With the City as the lead agent, the alternatives analysis, required by both State and Federal regulations, became relatively simple and limited in scope.

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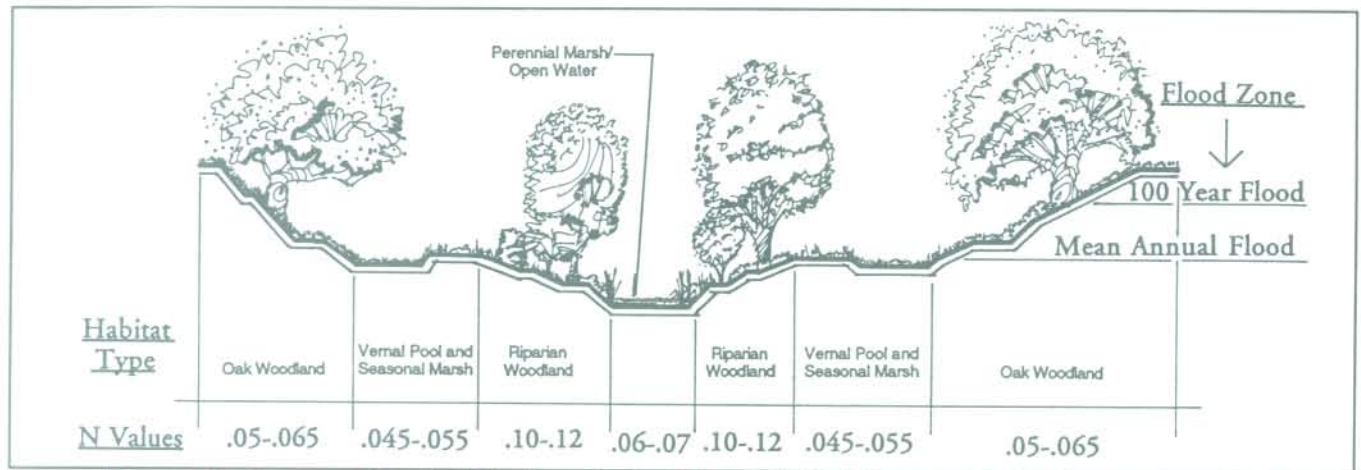


Figure 1, Laguna Creek (Vertical Scale: 1" = 12'-0" Horizontal Scale: 1" = 60'-0")

In final negotiations with the Corps of Engineers and the wildlife agencies, the City agreed to preserve 33 acres of the wetlands and build almost 138 acres as compensation for the loss of 65 acres. Wetlands and flood channels are often incompatible, though. The dense plant growth characteristic of many wetland types greatly increases channel roughness and flood elevations. Research done by Zentner and Zentner found that the most problematic species, primarily willows and cottonwoods, were found only below the mean annual flood line in the project region due to soil and seed viability factors. Accordingly, the creek corridor was (Figure 1) designed to maximize the vernal pool and seasonal marsh zone (N value of .045 to .055), provide for a substantial amount of open oak woodlands (N value of .05 to .065), a lesser amount of perennial marsh (N value of .06 to .07) and to greatly limit the riparian woodland zone (N value of .10 to .12).

Zentner and Zentner was hired to supplement the City inspectors because appropriate construction monitoring was of great concern to the City. The relationship between City inspector, ecological monitor and contractor can be problematic. If the monitors provided direction to the contractor without adequate coordination with City staff, the project could be subject to delays and change orders. This issue did not arise, though, due to the effort made by the Contractor (Granite Construction) and weekly meetings between the contractor and inspectors to ensure that all concerns were addressed promptly and within the contract. Partly because of this effort, construction costs were relatively low compared to many wetland creation projects. Although projects vary significantly in their scope and character, relevant literature and our experience suggest that com-

plex wetland construction projects in California range from about \$10,000 to \$30,000 per acre with an average over \$20,000. Costs at Laguna Creek, totaled \$565,000, about \$4,100 per acre.

The wetlands were monitored for 5 years after construction, including assessments of water depths in the vernal pools, health and height of the planted trees, bird use and other elements. Of the 62 vernal pools built, 45 met all performance standards. The unsuccessful pools were almost all in one portion of the project site that did not have suitable soils for pool construction, illustrating the need for good soils data prior to construction. The constructed freshwater marsh and riparian woodlands completely met all performance standards. In addition to supporting more than 100 species of birds (compared to 8 prior to construction) the new creek corridor created habitat for a wide variety of other wildlife, including the Federally-listed giant garter snake (*Thamnophis couchi gigas*). Pre-construction predictions with regard to flood heights and roughness values have also been verified. Although significant flooding has not occurred in the 5 years since construction, mean annual flood heights have been within inches of the predicted heights.

Prior to construction, the Laguna Creek project site was characterized by degraded seasonal wetlands and vernal pools; the creek was primarily a channelized ditch which promoted flooding. The City has successfully created freshwater marsh and riparian woodland habitats that did not exist prior to construction, including a large area of vernal pools. Wetland functions and values have all been significantly increased while still providing flood protection for adjacent homes and businesses. ❖