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**NATURAL RESOURCES COMMISSION**  
**Information Bulletin #17**  
**(First Amendment)**  
**Subject: Wetlands and Habitat Mitigation**

## **I. Purpose**

The purpose of Information Bulletin #17 is to establish a general framework for the assessment and determination of wetlands or habitat compensatory mitigation where a construction project is likely to reduce or degrade an existing wetland or habitat. The Department of Natural Resources will reference this bulletin when making licensing determinations and when commenting upon federal licenses, such as comments to the U.S. Army Corps of Engineers relative to Section 404 of the Clean Water Act (33 U.S.C. 1344).

The terms of the bulletin are not intended to establish inflexible mitigation standards, however, and are presented with the understanding that each parcel of real estate is unique and offers both challenges and opportunities which are peculiar to the parcel. Neither is the information bulletin intended to deprive an applicant or another interested person of the opportunity for administrative review of a licensing determination; for state licenses, which opportunity will be accorded as provided when a division of the Department of Natural Resources makes a decision to grant, condition, or deny a specific application.

## **II. Definitions**

Unless otherwise provided by law, the following definitions will be applied to this bulletin:

1. "Cumulative effects" means the impact which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what person undertakes the other actions. Cumulative effects can result from individually minor, but collectively significant actions taking place over a period of time.
2. "Mitigation" means taking specified action to eliminate, lessen, or replace the loss of environmental benefits and ecological functions where those benefits and functions are disturbed by human activities.
3. "Urban forest" means a wooded area or trees growing within the corporate limits of a city, town, or platted development.
4. "Wetland" means a transitional area between a terrestrial and deep water habitat (but not necessarily adjacent to a deep water habitat) where at most times the area is either covered by shallow water or the water table is at or near the surface and under normal circumstances any of the following are met:
  - (A) The area predominantly supports hydrophytes, at least periodically, or the substrate is predominantly undrained hydric soil, for example, peat or muck.
  - (B) The substrate is not a soil but is instead saturated with water or covered by shallow water some time during the growing season, for example, marl beaches or sand bars.

## **III. Background**

In 1990, the Indiana Department of Natural Resources, the Indiana Department of Transportation, and the U.S. Fish and Wildlife Service determined standardization among these agencies would be beneficial with regard to wetlands mitigation. No standard mitigation ratios were established by law, and license applicants attempted to reach agreement on an individual project basis with no general guidance. Toward the goal of standardization, a memorandum was developed among these three agencies and remains in effect. Generally, mitigation ratios for projects of the department transportation range from 1:1 to 4:1 or higher.

The agency memorandum of understanding has no direct application, however, to private developers or to governmental agencies other than the signatories. Developing a memorandum of understanding to incorporate all private developers was a practical impossibility, but the need for guidance is even more acute. By far, the greatest impact upon wetlands and other habitats derives from private development and sources other than the Department of Transportation. The development of a wetlands and habitat mitigation bulletin was viewed as the most flexible method for addressing these interests.

## **IV. Application**

Although state legislation administered by the Department of Natural Resources does not typically address wetlands or habitat by this terminology, the broad language contained within several programs expresses a clear legislative mandate that environmental and resource functions and benefits be considered in the regulatory process. Notable among these are [IC 14-28-1](#), [IC 14-26-2](#), [IC 14-26-5](#), and [IC 14-29-1](#). For example, the Flood Control Act ([IC 14-28-1](#)) precludes the issuance of a license which will have "unreasonably detrimental affects upon fish, wildlife, or botanical resources".

The Lake Preservation Act ([IC 14-26-2](#)) protects against activities which would threaten the "natural resources and natural scenic beauty" of Indiana's public freshwater lakes. At the heart of these environmental and resource values are wetlands.

To be noted, initially, is that some license applications must properly be denied in order to maintain the

integrity of the statutory pronouncements. Mitigation is in many instances a viable alternative to denial, however, and the purpose of this bulletin is to assist in identifying how mitigation will be applied.

A compensatory mitigation procedure may be accomplished by various methods. The procedure is often defined in terms of a ratio of units replaced to units altered. In other words, three acres may be replaced or reconstructed for one acre adversely impacted or destroyed. In short terms, this compensatory mitigation is described as a ratio of 3:1.

Compensatory mitigation for disturbances to natural resources is the final alternative which should be considered when a project is planned. The sequence to follow during project planning is

1. avoidance of disturbance;
2. minimization of disturbance; and
3. where these two alternatives do not dispose of the issue, compensatory mitigation for the loss of natural resources.

Mitigation ratios for wetlands and habitat should generally be greater than 1:1 for several reasons. There is typically a long term loss of values and functions of the impacted resources before a constructed or reconstructed area is developed. There is also the risk that the values and functions of the original area may not be fully replaced by the mitigation effort. There is a loss of production when a habitat is destroyed, and this production may never be equaled within the replacement area. With this foundation, the following chart is adopted for use in measuring wetlands and habitat mitigation:

DEPARTMENT OF NATURAL RESOURCES  
WETLANDS AND HABITAT MITIGATION GUIDELINES

Habitat Category	Standard Minimum
1. Palustrine Emergent Wetland	2:1
2. Non-wetland Forest (more than one acre of disturbance)	2:1
3. Palustrine Scrub-Shrub Wetland	3:1
4. Palustrine Forested Wetland	4:1

The standard minimum ratio assumes that the functions and values of the original habitat will be replaced in the same watershed as a result of compensatory mitigation. All ratios are in land measurements. The ratio is defined as the amount of area to be replaced or created (the first number): the amount of area being disturbed (the second number). There are several criteria pertaining to the disturbed habitat or the replacement habitat which influence the environmental value of the habitat area. When one or more of these criteria apply to the existing or replacement habitat, there will be an increase (or possibly a decrease) to the standard minimum ratio. Each of these criteria can increase or decrease the standard minimum by a factor from 0 to 1.0 in increments of 0.25. An activity that requires the adjustment of the standard mitigation ratio by a total increase greater than 2.0 will, most likely, be recommended for denial. These factors will be applied on a case-by-case basis. Where the following criteria apply to the existing or replacement habitat, the compensatory mitigation ratio requirement will be adjusted from the standard minimum:

- a) Proximity of the replacement habitat to the disturbed habitat. The standard minimum ratio may be increased if replacement does not occur on the same stream or within a 2.5 mile diameter of the disturbed site. This factor will be revised to require replacement within the same 14-digit Hydrologic Unit Code Area as the 14-digit Hydrologic Unit Code Area Maps are developed and become available. Maps for all counties in Indiana should be available by the end of 1999. Since 14-digit hydrologic units are between two and three miles in diameter, these maps will provide a basis for wetland replacement in the same watershed or within 2.5 miles of the disturbed site.

Examples of increased ratio:

- + 0.50 Mitigation site not on same stream, but site is on a nearby stream and within 2.5 miles from the disturbed site. (Mitigation site not within the same 14-digit hydrologic unit, but within an adjacent 14-digit hydrologic unit)
- + 1.0 Mitigation site on the same stream or a nearby stream and is greater than 2.5 miles from the disturbed site. (Mitigation site not within the same or adjacent 14-digit hydrologic unit, but within the same 8-digit hydrologic unit)

Mitigation outside of the 8-digit hydrologic unit will likely be denied.

- b) Cumulative effect of the activity. The standard minimum ratio may be increased when the impact on the disturbed area results in an incremental impact when added to other past, present, and reasonably foreseeable future disturbance to the area.

Examples of increased ratio:

- + 0.25 Riparian corridor development is common so that there is very limited or nonexistent fish or wildlife habitat remaining
- + 0.50 Riparian corridor development has occurred, but there is functional fish and wildlife habitat remaining.

The proposed project will result in additional losses to the remaining fish and wildlife habitat +0.75 to 1.0. Either of these two conditions exist. The proposed project will result in the loss of the last remaining fish and wildlife habitat within the area. Or, the proposed project is the first or nearly the first development that will result in fish and wildlife habitat losses in the area and there is the knowledge that the proposed project approval will invite additional projects in the area.

c) Location of the disturbed habitat to include such considerations as riparian corridor, community structure and composition, species diversity, and quality degradation. The standard minimum ratio may be increased when it is determined that one or more of these considerations apply and are a major influence in the functions and benefits of the habitat. The standard minimum ratio may be decreased in instances where the quality of the replacement habitat, in terms of functions and benefits, exceeds the quality of the disturbed habitat because either:

1. degradation has occurred to the existing habitat; or
2. improved interspersed of habitats, community structure, or species composition is likely to occur as a result of the replacement.

Examples of increased or decreased ratios:

+0.25 The site contains at least a 50-foot wide diverse wooded riparian corridor interspersed with at least one other habitat type

+0.50 Either of these conditions are present at the site. There is at least a 50-foot wide diverse wooded riparian corridor interspersed with more than one other habitat type. Or, there is a diverse wooded corridor greater than 100 feet wide

+0.75 or 1.0 There is a diverse wooded corridor greater than 100 feet wide which is interspersed with more than one other habitat type, or there are more than two habitat types interspersed at the site

-0.50 or 1.0 The habitat to be disturbed is degraded and no longer performs some or all of the functions it is capable of performing. The mitigation site will be capable of performing most or all of the functions lost at the disturbed site

d) Other habitats of concern

These guidelines do not specifically address all possible habitats, such as lacustrine and riverine wetlands. Disturbance of these habitats is discouraged but may be unavoidable for certain projects. The Indiana Department of Natural Resources and Indiana Department of Environmental Management offer numerous techniques to minimize negative impacts to these resources and to enhance their functions for erosion, sedimentation, and fish and wildlife. These techniques may also be required as a compensatory mitigation requirement for disturbance of these habitats.

Urban forests are not specifically addressed in the guidelines. If the disturbed area has more than one acre of tree removal, mitigation will be required as specified in the standard ratios. When the disturbed area has less than one acre of tree removal, five trees shall be planted for each tree that is removed having a diameter of at least 10 inches.

Denial of projects in some areas is likely, or mitigation ratios exceeding these guidelines may be required, if disturbance is permitted. Examples include:

1. disturbance to areas owned or managed by the department of natural resources;
2. exceptional and extremely rare habitats (such as bogs) that cannot, or are extremely difficult to reconstruct; and
3. critical habitat for endangered and threatened species.

## V. History

This information bulletin was published on September 1, 1997, at 20 IR 3546. On November 14, 2006, the Commission reviewed and affirmed this bulletin. The November 2006 amendments modified formatting and added a history section.

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An [html](#) version of this document.