

Lake Columbia Downstream Impacts Analysis

September 2005

Prepared for

**Angelina and Neches
River Authority and
Texas Water
Development Board**

ANR01289



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**ANGELINA AND NECHES RIVER AUTHORITY AND
TEXAS WATER DEVELOPMENT BOARD**

LAKE COLUMBIA

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SEPTEMBER 2005

PREPARED BY



ANR01289

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1.0 INTRODUCTION

1.1 Background

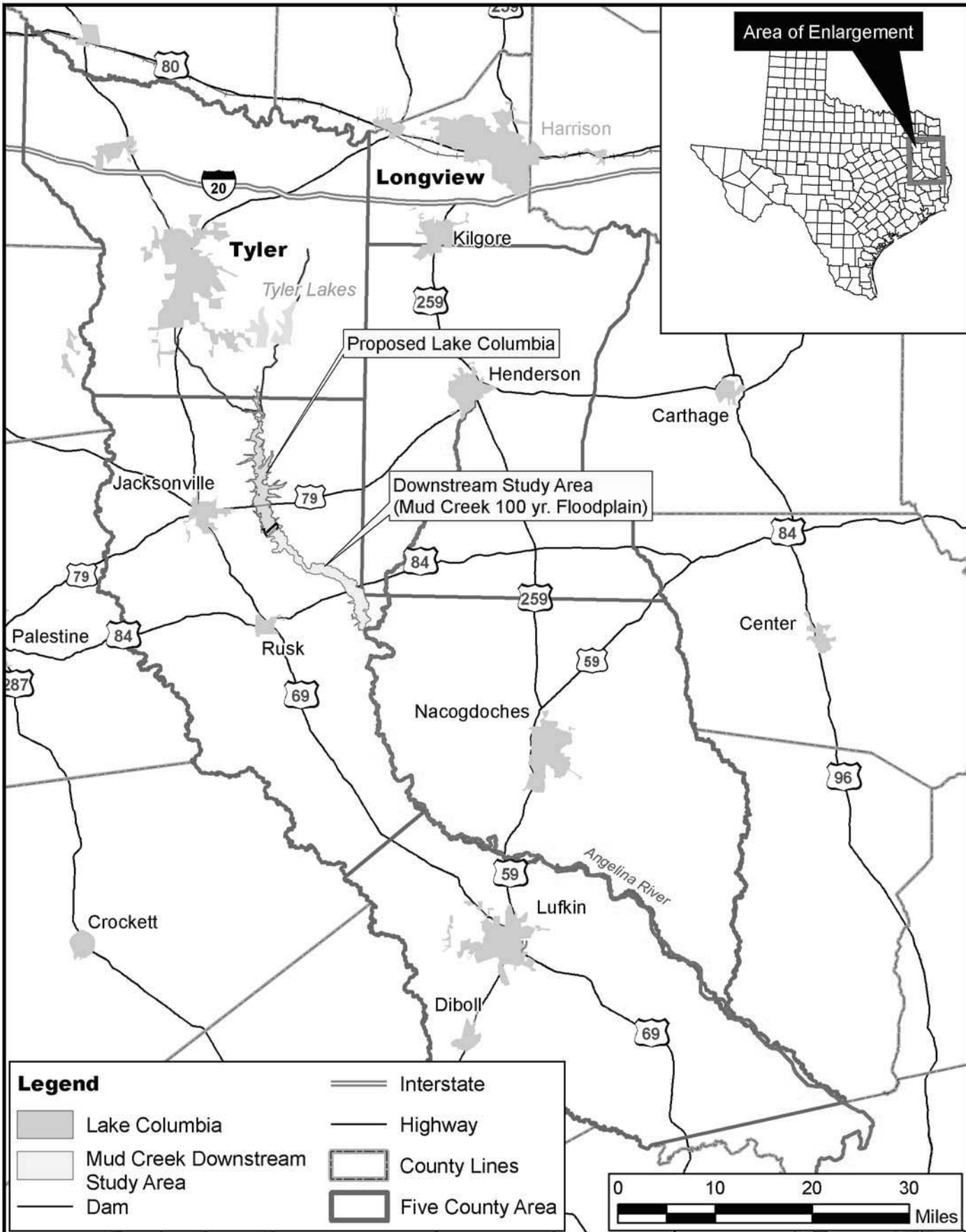
The Angelina and Neches River Authority (ANRA) entered into an agreement with the Texas Water Development Board (TWDB) in March 2001 for a matching grant to conduct planning studies for the proposed Lake Columbia water supply project (TWDB Contract No. 2001-483-385) which was known then as Lake Eastex. Public coordination meetings were held in Jacksonville, Texas, in March and September 2001, and September 2002 during preparation of the planning studies report. A meeting was held at a special session of the ANRA Board of Directors in Lufkin on March 12, 2003, to present a summary of the draft planning studies report. In addition, ANRA provided periodic updates of the ongoing planning studies on its project web site, <http://www.lakeeastex.org>, as well as opportunity for visitors of the web site to provide comments on the planning studies and other aspects of the Lake Columbia project.

The final planning studies report (Freese and Nichols, 2003), which focused on the reservoir pool and immediate vicinity of the dam, was completed in May 2003.

The current study was spawned by inquiries of resource agency staff, including the U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, Texas Commission on Environmental Quality, and Texas Parks and Wildlife, who participated in the 2001-2003 planning studies effort. They expressed questions about the area of potential effects of Lake Columbia on the stream corridor downstream of the proposed lake. Recognizing this as an important issue from a planning perspective, the ANRA proposed an amendment to the TWDB to add a study to define the area of potential downstream effects to the existing TWDB matching grant. Consequently, the Planning Studies contract between that ANRA and TWDB was modified in April 2003 to include the downstream impacts study. The ANRA contracted with Freese and Nichols, Inc. (FNI) in April 2003 to assist with the downstream study.

1.2 Purpose

The primary purpose of the Lake Columbia Downstream Impacts Study was to identify the potential downstream area of effect in the Mud Creek floodplain based on expected reservoir operation conditions. The limits of the study area was defined as the existing 100-year floodplain of Mud Creek between the proposed dam site and the confluence with the Angelina River, although hydraulic modeling included a portion of the Angelina River upstream and downstream of the confluence in order to make the Mud Creek backwater model behave appropriately. Figure 1.1 shows the location of the study area.



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Study components included 1) review of literature on downstream impacts of reservoirs, 2) computer simulation of reservoir operation, 3) hydraulic and hydrologic computer modeling to compare Mud Creek floodplain boundaries with and without the proposed reservoir, 4) delineation of land cover types in the area of effect using remotely sensed data, and 5) preliminary evaluation of impacts on selected natural resources. The study was intended to provide boundaries defining the limits of the area of potential changes in floodplain areas and a macro-scale evaluation of potential downstream impacts due to the proposed Lake Columbia.

References

Freese and Nichols, Inc. 2003. Lake Eastex Planning Studies Report. Prepared for Angelina and Neches River Authority and the Texas Water Development Board. Fort Worth, Texas.

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2.0 LITERATURE REVIEW

The objective of the current study was to sample the large body of scientific literature pertaining to the downstream effects of dams with an emphasis on finding studies similar to Lake Columbia in terms of physiographic setting and operation. Downstream impacts of reservoirs having different operating characteristics and located in vastly different geographic regions may not be comparable with respect to type or magnitude of effect. Therefore, a primary objective of the literature survey was to identify downstream impacts studies for reservoirs similar in operation and geographic location to the proposed Lake Columbia.

The literature search yielded nearly 300 titles that were reviewed for this study. These included studies that related specifically to the hydrologic, morphologic, and ecologic downstream effects of dams (e.g., Gergel, 2002; Bergkamp et al. 2000; and Ligon et al., 1995; Hodges and Switzer, 1979; Light et al., 2002; and Trayler, 2000), as well as other papers describing floodplain ecology but not necessarily the impacts of dams (e.g., Batzer and Wissinger, 1996; and Guo et al., 1998). The list of publications reviewed is presented at the end of this section. Key papers are cited in the following discussion.

2.1 Common Downstream Effects of Dams

The effects of dams on rivers have been studied extensively in the United States and elsewhere over the past several decades as dam construction has proliferated to meet the demands for flood control, water supply, hydroelectric power, irrigation, and other uses, and as awareness and interest in the environmental impacts of dams has increased in recent years.

In general, the downstream effects of any given dam may be reflected in several of the following ways:

- Changes in downstream hydrology
 - instream flows
 - flood regimes
 - seasonal flows
 - total flows
 - short-term fluctuations in flows
 - extreme high and low flows.
 - reduced overbank flooding
- Changes in downstream morphology
 - reduced size of active floodplain
 - reduced flood peaks and frequency
 - increased erosion
- Changes in downstream water quality
- Reduction in riverine/riparian/floodplain habitat diversity
 - riparian vegetation sensitive to minimum and maximum flows

- Changes in physical and biological processes
- Groundwater recharge

The magnitude of these changes, and indeed whether some of these effects occur at all, depends on the type of dam, how it is operated, and where it is located.

The Lake Columbia dam was described in the initial phase of the current planning study grant (Freese and Nichols, 2003). As noted, the dam will be a rolled earth fill embankment with a maximum height of 67 feet and a length of 6,880 feet. The outlet works will consist of two 48-inch conduits for intended releases. The dam will have an uncontrolled service spillway with a crest elevation of 315 feet National Geodetic Vertical Datum (NGVD) and an emergency spillway with a crest elevation of 324 feet NGVD. The reservoir is not designed for flood control. Thus, all inflows into Lake Columbia when the water surface elevation is at or above the conservation pool level (i.e., 315 feet NGVD), will spill downstream through the service and emergency spillways.

Many researchers have emphasized the difficulty of identifying or predicting the changes that a dam might have on the downstream corridor (Phillips, 2003). In a comprehensive study of the downstream effects of dams in the U.S., Williams and Wolman (1984) noted several common trends between 21 study sites:

“(1) Frequent occurrence of major changes right after dam closure; (2) appearance in many cases of the greatest change just downstream from the dam with progressive decrease or recovery downstream; (3) progressive change toward an apparent new stability at a site in the years after dam closure; (4) continuous or non-reversible character of the change at many locations; and (5) diversity of climatic and physiographic regions in which the [channel change] process has been observed.”

They also pointed out that the geologic record indicates that small changes in climatic factors can produce significant changes in channel morphology, and that these and other natural influences may mask the effects on channel morphology and vegetation that can be attributed solely to the effect of a given dam. As they noted, “some of the [observed] channel changes might well have occurred during the period of observation even in the absence of human interference” (Williams and Wolman, 1984), i.e., dam construction.

2.2 Effects on Hydrology, Sediment Transport, and Riparian Vegetation

Streams are dynamic systems that reflect the effects of all the forces acting upon them, including climatic, geologic and human influences. If these forces remain constant for a relatively long period, a stream may reach a state of so-called dynamic equilibrium, where the channel morphology (e.g., width, depth, and sinuosity) becomes relatively constant.

The primary undisputed downstream impacts of a dam are on the hydrology and sediment transport of a stream (Brandt, 2000; Williams and Wolman, 1984 and others). A particular dam's impact depends on many site-specific factors, such as the dam's structure and operation, local hydrology, basin sediment characteristics, geomorphic constraints, climate, and attributes of the local biota (Bergkamp et al, 2000). A gated spillway dam operated for flood control by capturing peak flows and releasing the stored water gradually affects the hydrology differently than a non-gated dam with a passive spillway operated for water supply or recreation. Both dams will tend to reduce peak flows, but the gradual release of flood waters from the gated structure will prolong and possibly increase baseflow downstream, as observed in studies of Yegua Creek below Somerville Dam in the Brazos River basin, Texas (Chin et al., 2002). Dams built for hydroelectric power generation also may dampen peaks and result in highly variable daily flows, but they might not reduce annual discharge significantly (Jennings, 1999).

Dams alter sediment cycling in rivers by intercepting large masses of sediment that otherwise would be transported downstream (Nilsson and Berggren, 2000). The sediment removal efficiency of large dams often exceeds 99 percent (Williams and Wolman, 1984). The enhanced sediment carrying capacity of water discharged from a reservoir is typically evident by a scoured channel downstream of the dam, though the length of this effect varies greatly among streams and is dependent on the distance required for the stream to recover its pre-dam sediment loads or concentrations. Sediment sources downstream of the dam include the channel bed and banks and tributary inflows.

In a sediment transport study on Loco Bayou downstream of Lake Nacogdoches, Phillips (2001) concluded that, while the channel immediately below Loco Dam had experienced a net loss of sediment, the dam had no effect on sediment supplies at a study site approximately 10 miles downstream. The principal source of sediment at this location was believed to be contributed by erosion from the 14-square mile watershed between the dam and the study site. Furthermore, he observed no evidence of a significant change in channel or floodplain morphology, no reduction in alluvial sedimentation, nor did he find any other indication of a reduction in fluvial sediment supply at the study site 10 miles downstream.

Phillips (2001) raised the question of whether or not sediment from the upper basin was being transported to the lower basin prior to dam construction. He noted that a *decoupling* effect has been demonstrated in some larger basins whereby very little sediment actually migrated from the upper basin to the lower basin and speculated that this might be the case for Loco Bayou. Once a stream reaches its sediment carrying capacity, it is said to be *transport limited*, meaning that more sediment is available than the stream is able to carry. Therefore, any additional sediment input will result in deposition on the stream bed. Streams that have the capacity to transport additional sediment are classified as *sediment limited*.

Trush and McBain (2000) suggest that a river system's foundation is the interaction of flowing water, sediment and riparian vegetation. Chin et al. (2002) and Jennings (1999) studied the effects of Somerville Dam, a flood control dam with a gated spillway, on the hydrology, channel capacity, and floodplain vegetation of Yegua Creek, the boundary between Washington and Burleson counties, Texas. Chin et al. found that channel capacity in the 12-mile reach downstream of Somerville Dam had decreased by an average of 65 percent in 34 years following dam closure. The loss of capacity was attributed primarily to an average depth reduction of 61 percent, indicating sediment deposition due to transport limitation, with a decrease in average width of only 9 percent. The reduction in capacity corresponded to an 85 percent reduction in annual flood peaks. Jennings (1999) reported that riparian vegetation had increased in proximity to the Yegua Creek channel. This change was attributed to the change in hydrologic regime due to operation of the dam. The reduction of peak flows and increased availability of water through summer and early fall apparently provided favorable conditions for survival of seedlings in the riparian zone that, under pre-dam conditions, were lost to flooding or drought.

Chang and Crowley (1997) reported similar results from a study of the downstream effects of Sam Rayburn Dam on streamflow and vegetation in the Angelina River floodplain in East Texas. Sam Rayburn Reservoir is operated by the U.S. Army Corps of Engineers and was authorized by Congress in 1955 for the purposes of flood control, hydroelectric power generation, and conservation of water for municipal, industrial, agricultural, and recreational uses. The dam was originally completed in 1965 and modified in 1996, and includes two 18 feet by 26 feet power conduits and two 10 feet by 20 feet flood control gates through which water is released from the lake. The study compared streamflow and vegetation characteristics between study areas immediately downstream of the reservoir and a relatively undisturbed area along the Neches River approximately 12 miles to the west. The findings indicated that annual streamflow below the dam was not affected, but that flood peaks were lower and flow was higher in the summer months due to reservoir operation. Vegetation comparisons, including woody and herbaceous species in all strata of the forest stands at each site, indicated that the site downstream of the dam had greater species diversity, richness, and evenness. They concluded that reduced flooding and moderation of streamflow variation below the dam made the area a more diverse and stable ecosystem than the Neches River site (Chang and Crowley, 1997).

Conner et al. (1981) concluded that hydrology is the overriding factor controlling recruitment and survival of bottomland hardwood seedlings in their comparison of the effects of different flooding regimes on vegetative composition of three swamp sites in Louisiana. Theriot (1993) studied the relationship between relatively undisturbed bottomland forest species associations and their topographic position in floodplains of the southeastern United States. The study results supported the generally agreed notion that flooding is the dominant environmental factor influencing the makeup of bottomland

forests, due to its effects on regeneration success and soil saturation. Individual species were shown to have flood tolerance levels that reflected the species' optimum position along the hydrologic gradient in the bottomland forest.

Species associations of southern bottomland hardwoods described by Hodges and Switzer (1979) provide an indication of the potential shift in species composition that might be expected at the affected floodplain margins over time (Table 2.1). At the edges of the floodplain where the frequency of flooding might decrease after dam closure, there could be a shift in species composition to a slightly drier assemblage. In humid East Texas, such a shift in composition likely would occur gradually over a long period of time unless a disturbance such as logging or wildfire caused an opening in the existing stand and vegetation was allowed to regenerate unmanaged. Theriot (1993) observed that while established trees in relatively undisturbed areas served as reliable indicators for identifying hydrologic zones within a floodplain, such trees may remain for decades following hydrologic alteration. This is in contrast to the more immediate effects expected in water scarce semi-arid or sub-arctic regions where flood hydrology is typically more important for watering, fertilizing, cleaning, and sowing the land (Nilsson and Berggren, 2000).

Table 2.1 Representative associations of southern bottomland hardwood species based on topographic position relative to minor streams in the southeastern U.S.

Wetter Flats in Floodplains of Minor Streams	Drier Floodplain Zones of Minor Streams	Adjacent Terraces of Minor Streams
overcup oak (<i>Q. lyrata</i>), willow oak (<i>Q. phellos</i>), and possibly Nuttall oak (<i>Q. nuttallii</i>)	sweetgum (<i>Liquidambar styraciflua</i>), cherrybark oak (<i>Quercus falcata</i> var. <i>pagodifolia</i>), water oak (<i>Q. nigra</i>), swamp chestnut oak (<i>Q. michauxii</i>), blackgum (<i>Nyssa sylvatica</i>), winged elm (<i>Ulmus alata</i>), and hickories (<i>Carya</i> spp.)	sweetgum, green ash (<i>Fraxinus pennsylvanica</i>), Nuttall oak, red maple (<i>Acer rubra</i>), white oak (<i>Q. alba</i>), southern red oak (<i>Q. falcata</i>), yellow poplar (<i>Liriodendron tulipifera</i>), many of the hickories, and possibly post oak (<i>Q. stellata</i>) and loblolly pine (<i>Pinus taeda</i>)

Source: Hodges and Switzer, 1979

The Texas Bottomland Hardwood Preservation Program (U.S. Fish and Wildlife Service, 1984) proposed 62 bottomland areas for consideration of some level of habitat preservation or further study. These sites were considered to be important for maintaining populations of mallards (*Anas platyrhynchos*) and wood ducks (*Aix spinosa*). The Mud Creek site, classified as a "Priority 1" area (i.e., excellent quality bottomlands of high value to mallards and wood ducks), is located eleven stream miles downstream from the Lake Columbia site and encompasses the lower Mud Creek floodplain downstream of U.S. Highway 84 to the Mud Creek – Angelina River confluence. The location of the proposed Mud Creek Priority 1 site is shown relative to the existing Mud Creek 100-year floodplain in Figure 2.1. This area covers 4,099 acres of the 100-year floodplain, including 3,566 acres of forest, 527 acres of

grassland/pasture, and less than 10 acres of clearcut land and water. The boundaries of the proposed Priority 1 area appear to have been generously delineated, as they extend well beyond the 100-year floodplain identified in the current study. The report characterized the Mud Creek Priority 1 site as having no upstream reservoir, several large tributaries, a conspicuously braided stream channel, and a flat and fertile floodplain with frequent flooding. This characterization apparently overlooked, or deemed unimportant, the fact that the Tyler Lakes lie approximately 30 miles upstream and regulate 114 square miles of the 520 square mile watershed above U.S. Highway 84, the approximate upper boundary of the Priority 1 site.

In summary, the primary impact of dams on streams relates to their effects on hydrology and sediment transport. Other effects on riparian and floodplain flora, and the fauna that inhabit those areas, are dependent on the hydrologic and morphologic changes in the channel and floodplain that are driven by these processes. The magnitude of the effects and the downstream distance that such effects are manifested are site-specific and depend on the type of dam, its operation, and local variables such as climate, geology, basin sediment characteristics, floodplain vegetation, and human influences in the watershed.

References

- Adamek, Z., and P. Jurajda. 2001. Stream habitat or water quality - what influences stronger fish and macrozoobenthos biodiversity? *Ecohydrology and Hydrobiology*, Vol. 1(3):305-311.
- Allen, J.A. 1997. Reforestation of bottomland hardwoods and the issue of woody species diversity. *Restoration Ecology*, Vol. 5:125-134.
- Amoros, C., A.L. Roux, J.L. Reygrobellet, J.P. Bravard, and G. Pautou. 1987. A method for applied ecological studies of fluvial hydrosystems. *Regulated Rivers*, Vol. 1:17-36.
- Anderson, A.A., C. Hubbs, K.O. Winemiller, and R.J. Edwards. 1995. Texas freshwater fish assemblages following three decades of environmental change. *The Southwestern Naturalist*, Vol. 40(3):314-321.
- Angermeier, P.L., and J.R. Karr. 1984. Relationships between woody debris and fish habitat in a small warmwater stream. *Transactions of the American Fisheries Society*, Vol. 113:716-726.
- Auble, G.T., and M.L. Scott. 1998. Fluvial disturbance patches and cottonwood recruitment along the upper Missouri River, Montana. *Wetlands*, Vol. 18:546-556.
- Auble, G.T., J.M. Friedman, and M.L. Scott. 1996. Test of a hydroperiod relation to predict changes in riparian vegetation. From big rivers to small streams, pp 25-26. Society of Wetland Scientists, Kansas City, Missouri.
- Auble, G.T., J.M. Friedman, and M.L. Scott. 1994. Relating riparian vegetation to present and future streamflows. *Ecological Applications*, Vol. 4:544-554.
- Auble, G.T., M.L. Scott, J.M. Friedman, and L.S. Ischinger. 1994. Modeling effects of flow alteration on riparian vegetation. *Research Information Bulletin*, 3 p.
- Aust, W.M., R. Lea, and J.D. Gregory. 1991. Removal of floodwater sediments by a clearcut tupelo-cypress wetland. *Water Resources Bulletin*, Vol. 27:111-116.
- Babbitt, B. 2002. What goes up, may come down. *BioScience*, Vol. 52(8):656.
- Baldwin, D.S., and A.M. Mitchell. 2000. The effects of drying and re-flooding on the sediment and soil nutrient dynamics of lowland river-floodplain systems: a synthesis. *Regulated Rivers: Research & Management*, Vol. 16:457-467.
- Barclay, J.S. 1980. Impact of stream alterations on riparian communities in south-central Oklahoma. FWS/OBS-80/17. U.S. Fish and Wildlife Service, Washington, DC.
- Barry, D., and A.J. Kroll. 1999. A phytosociological description of a remnant BLH forest in Denton, TX. *Texas Journal of Science*, Vol. 51(4):309-316.
- Batema, D.L., G.S. Henderson, and L.H. Fredrickson. 1985. Wetland invertebrate distribution in bottomland hardwoods as influenced by forest type and flooding regime. Proc. Fifth Annual Hardwood Conference, pp 196-202. Univ. Ill., Urbana.
- Battaglia, L.L., S.A. Fore, and R.R. Sharitz. 2000. Seedling emergence, survival and size in relation to light and water availability in two bottomland hardwood species. *Journal of Ecology*, Vol. 88(6):1041.

- Batzer, D. P., and S.A. Wissinger. 1996. Ecology of insect communities in nontidal wetlands. *Annual Review of Entomology*, Vol. 41:75-100.
- Bayley, P.B. 1991. The flood pulse advantage and the restoration of river-floodplain systems. *Regulated Rivers: Research & Management*, Vol. 6:75-86.
- Bedient, P., and W. Huber. 2002. Hydrology and floodplain analysis in Bedient, P., and W. Huber, *Hydrology and floodplain analysis*. Upper Saddle River, NJ, Prentice Hall.
- Bedinger, M.S. 1971. Forest species as indicators of flooding in the lower White River Valley, Arkansas. U.S. Geological Survey Professional Paper 750-C.
- Bendix, J. 1999. Stream power influence on southern Californian riparian vegetation. *Journal of Vegetation Science*, Vol. 10:243-252.
- Benke, A. C. 2001. Importance of flood regime to invertebrate habitat in an unregulated river-floodplain ecosystem. *Journal of the North American Benthological Society*, Vol. 20(2):225-240.
- Benke, A. C., I. Chaubey, G.M. Ward, and E.L. Dunn. 2000. Flood pulse dynamics of an unregulated river floodplain in the southeastern US coastal plain. *Ecology*, Vol. 81(10):2730-2741.
- Bergkamp, G., P. Dugan, and J. McNeeley. 2000. Dams, Ecosystem Functions, and Environmental Restoration. Thematic Review II.1. World Commission on Dams, Cape Town, www.dams.org.
- Bern, L.J. 1993. Riparian zone, stream, and floodplain issues: a review. *Journal of Hydrology*, Vol. 150:277-299.
- Best, L.B., D.F. Stauffer, and A.R. Geier. 1979. Evaluating the effects of habitat alteration on birds and small mammals occupying the riparian communities. Pages 117-124. U.S. Department of Agriculture Forest Service.
- Bis, B., A. Zdanowicz, and M. Zalewski. 2000. Effects of catchment properties on hydrochemistry, habitat complexity and invertebrate community structure in a lowland river. *Hydrobiologia*, Vol. 422/423:369-387.
- Bonner, F.T. 1996. Responses to drying of recalcitrant seeds of *Quercus nigra* L. *Annals of Botany*, Vol. 78:181-187.
- Bornette, G., C. Amoros, and N. Lamouroux. 1998. Aquatic plant diversity in riverine wetlands: the role of connectivity. *Freshwater Biology*, Vol. 39:267-283.
- Bowen, Z.H., M.C. Freeman, and K.D. Bovee. 1998. Evaluation of generalized habitat criteria for assessing impacts of altered flow regimes on warmwater fishes. *Transactions of the American Fisheries Society*, Vol. 127:455-468.
- Bowers, C., H. Hanlin, D.J. Guynn, J. McLendon, and J. Davis. 2000. Herpetofaunal and vegetational characterization of a thermally-impacted stream at the beginning of restoration. *Ecological Engineering*, Vol. 15 (supplement 1):S101-S114.
- Bowman, M.B. 2002. Legal perspectives on dam removal. *BioScience*, Vol. 52(8):739.

- Boyer, K. 2003. Annotated bibliography of technical references pertaining to restoration of streams and rivers, riparian areas and floodplains, version 1. NRCS Wildlife Habitat Management Institute.
- Brabender, J.J., R.E. Master, and R.M. Short. 1985. Bottomland hardwoods of eastern Oklahoma: a special study of their study, trends, and values. Oklahoma Department of Wildlife Conservation and U.S. Fish and Wildlife Service, Norman.
- Bradley, C., and D.J. Gilvear. 2000. Saturated and unsaturated flow dynamics in a floodplain wetland. *Hydrological Processes*
- Brandt, S.A. 2000. Classification of geomorphological effects downstream of dams. *Catena*, Vol. 40:375-401.
- Brinson, M. 1995. The HGM approach explained. *National Wetlands Newsletter*, November-December 1995:7-13.
- Brinson, M.M. 1993. Changes in the functioning of wetlands along environmental gradients. *Wetlands*, Vol. 13(2):65-74.
- Brinson, M.M. 1988. Strategies for assessing the cumulative effects of wetland alteration on water-quality. *Environmental Management*, Vol. 12(5):655-662.
- Brinson, M.M., B.L. Swift, R.C. Plantico, and J.S. Barclay. 1981. Riparian ecosystems: their ecology and status. FWS/OBS-81/17. United States Fish and Wildlife Service.
- Brode, J.M., and R.B. Bury. 1984. The importance of riparian systems to amphibians and reptiles. Warner, R.E., and K.M. Hendrix, eds., University of California, Davis, pp 30-36.
- Brookes, A., J. Baker, and C. Redmond. 1996. Floodplain restoration and riparian zone management. Pages 201-228 in A. Brookes and J.F.D. Shields, eds., *River channel restoration: guiding principles for sustainable projects*. John Wiley and Sons, Ltd., Chichester, UK.
- Brooks, R.P., E.D. Bellis, C.S. Keener, M.J. Croonquist, and D.E. Arnold. 1991. A methodology for biological monitoring of cumulative impacts on wetland, stream, and riparian components of watershed. Pages 387-398 in ed. Kusler, J.A., and S. Daly, *Proceedings of an international symposium: wetlands and river corridor management*, July 5-9, 1989. Charleston, South Carolina.
- Brown, M.T. 1991. The role and importance of depth and duration of flooding in the maintenance and conservation of wetland functions and values: management implications and strategies. The University of Florida Center for Wetlands, Gainesville, Florida.
- Burdick, D.M., D. Cushman, R. Hamilton, and J.G. Gosselink. 1989. Faunal changes and bottomland hardwood forest loss in the Tensas watershed, Louisiana. *Conservation Biology*, Vol. 3:282-292.
- Burns, G.A., R.M. Whiting, Jr., G.M. LeGrande, and J.G. Dickson. 1999. Wildlife linkages: volumes and values of residual timber in riparian zones in eastern Texas. *Forest Ecology and Management*, Vol. 114: 321-327.

- Burt, D.W., and J.H. Mundie. 1986. Case histories of regulated stream flow and its effects on salmonid populations. *Can. Tech. Fish. Aquatic Sci.*, Vol. 1477:1-98.
- Burt, T.P. 1997. The hydrological role of floodplains within the drainage basin system in N.E. Haycock, T.P. Burt, K.W.T. Goulding, and G. Pinay, eds., *Buffer zones: their processes and potential in water protection*. Quest Environmental.
- Buzan, D. 1997. Biodiversity in Texas' Waters: Many Diverse Aquatic Ecosystems Support a Vibrant Fishery. *Texas Water Resources*, Vol. 23, No. 1.
- Campbell, J.M. Chapter 9: wetland ecosystem development: an evaluation of the concept of wetland plant succession in *Ecology of wetlands and associated systems*. www.pitt.edu/~aap/pas/ecology.pdf.
- Carter, V. 1996. Wetland hydrology, water quality, and associated functions. U.S. Geological Survey Water-Supply Paper 2425, pp 35-48.
- Casas, J.J., C. Zamora-Munoz, F. Archila, and J. Alba-Tercedor. 2000. The effect of a headwater dam on the use of leaf bags by invertebrate communities. *Regulated Rivers: Research & Management*, Vol. 16:577-591.
- CH2M Hill and Winchester Environmental Associates. 1988. Preliminary estimates of potential vegetation changes associated with hydroperiod alteration and construction activities. Deerfield Beach, Florida.
- Chang, M. and C.M. Crowley. 1997. Downstream effects of a dammed reservoir on streamflow and vegetation in East Texas. In *Sustainability of Water Resources under Increasing Uncertainty (Proceedings of the Rabat Symposium S1, April 1997)*. IAHS Publ. No. 240, 1997.
- Chapman, R.J., T.M. Hinckley, L.C. Lee, and R.O. Teskey. 1982. Impact of water level changes on woody riparian and wetland communities. Vol. X, FWS/OBS-82/23. Fish and Wildlife Service.
- Chovanec, A., and J. Waringer. 2001. Ecological integrity of river-floodplain systems - assessment by dragonfly surveys (Insecta: Odonata). *Regulated Rivers: Research & Management*, Vol. 17:493-507.
- Clark. 1985. Scales of climate impacts. *Clim. Change*, Vol. 7:5-27.
- Clark, J.E. 1979. Fresh water wetlands: habitats for aquatic invertebrates, amphibians, reptiles, and fish. Wetland function and values: the state of our understanding. *Proceedings of the National Symposium on Wetlands*. Greeson, P.E., J.R. Clark, and J.E. Clark, ed., pp 330-343. American Water Resources Association, Minneapolis, MN.
- Clawson, R., B. Lockaby, and B. Rummer. 2000. Changes in production and nutrient cycling across a wetness gradient within a floodplain forest. *Ecosystems*, Vol. 4:126-138.
- Cohn, J.P. 2001. Resurrecting the dammed: a look at Colorado River restoration. *BioScience*, Vol. 51:998-1003.
- Collier, R.H. Webb, and J.C. Schmidt. 1996. Dams and rivers: a primer on the downstream effects of dams. U.S. Geological Survey Paper 1126. USGS: Washington.

- Conner, W., I. Mihalia, and J. Wolfe. 2002. Tree community structure and changes from 1987 to 1999 in three Louisiana and three South Carolina forested wetlands. *Wetlands*, Vol. 22:58-70.
- Conner, W., L. Inabinnette, and C. Lucas. 2001. Effects of flooding on early growth and competitive ability of two wetland tree species and an exotic. *Castanea*, Vol. 66(3):237-244.
- Conner, W., K. McLeod, and J. McCarron. 1998. Survival and growth of four bottomland oak species in response to increased flooding and salinity. *Forest Science*, Vol. 44(4):618-624.
- Conner, W.H., and J.W. Day, Jr. 1992. Diameter growth of *Taxodium distichum* (L.) Rich. and *Nyssa aquatica* L. from 1979-1985 in four Louisiana swamp stands. *American Midland Naturalist*, Vol. 127(2):290-299.
- Conner, W.H., and J.W. Day, Jr. 1991. Leaf litter decomposition in three Louisiana freshwater forested wetland areas with different flooding regimes. *Wetlands*, Vol. 11(2):303-312.
- Conner, W.H., and J.R. Toliver. 1990. Long-term trends in the baldcypress (*Taxodium distichum* (L.) Rich.) resource in Louisiana. *Forest Ecology and Management*, Vol. 33/34:543-557.
- Conner, W.H., and K. Flynn. 1989. Growth and survival of baldcypress (*Taxodium distichum* (L.) Rich.) planted across a flooding gradient in a Louisiana bottomland forest. *Wetlands*, Vol. 9(2):207-217.
- Conner, W.H., J.G. Gosselink, and R.T. Parrondo. 1981. Comparison of the vegetation of three Louisiana swamp sites with different flooding regimes. *American Journal of Botany*, Vol. 68:320-331.
- Conway, W.C., L.M. Smith, and J.F. Bergan. 2000. Evaluating germination protocols for Chinese Tallow. *The Texas Journal of Science*, Vol. 52(3):267.
- Copps, G.H. 1989. The habitat diversity and fish reproductive function of floodplain ecosystems. *Environmental Biology of Fishes*, Vol. 26:1-27.
- Crandall, D.A., R.C. Mutz, and L. Lautrup. 1984. The effects of hydrologic modifications on aquatic biota, stream hydrology, and water quality: a literature review. Illinois Environmental Protection Agency, Division of Water Pollution Control. Springfield, IL.
- Croonquist, M.J., and R.P. Brooks. 1991. Use of avian and mammalian guilds as indicators of cumulative impacts in riparian-wetland areas. *Environmental Management*, Vol. 15:701-714.
- Daniel, R.S., and R.R. Fleet. 1999. Bird and small mammal communities of four similar-aged forest types of the Caddo Lake area in East Texas. *The Texas Journal of Science*, Vol. 51(1):65.
- Darnell, R.M., W.E. Pequegnat, B.M. James, F.J. Benson, and R.A. Defenbaugh. 1976. Impacts of construction activities in wetlands of the United States. EPA-600/3-76-045. U.S. Environmental Protection Agency, Washington.
- Day, J.W., Jr., J.M. Rybczyk, G. Garson, and W.H. Conner. 1997. The development of functionally based ecosystem indices of biotic integrity for southeastern bottomland hardwood forests. Final Report to the Environmental Protection Agency, Contract No. CR823049-01.

- Decamps, H. 1996. The renewal of floodplain forests along rivers: a landscape perspective. *Verh. Internat. Verein. Limnol.*, Vol. 26:35-59.
- Deller, A.S., and G.A. Baldassarre. 1988. Effects of flooding on the forest community in a greentree reservoir 18 years after flood cessation. *Wetlands*, Vol. 18:90-99.
- Doeg, T.G., G.W. Davey, and J.D. Blyth. 1987. Response of the aquatic macroinvertebrate communities to dam construction on the Thomson river, south-eastern Australia. *Regulated Rivers: Research & Management*, Vol. 1:195-209.
- Dominick, D.W.S., and M.P. O'Neill. 1998. Effects of flow augmentation on stream channel morphology and riparian vegetation: upper Arkansas River Basin, Colorado. *Wetlands*, Vol. 18:591-607.
- Ehrenfeld, J.G., and Schneider, J.P. 1993. Responses of forested wetland vegetation to perturbations of water chemistry and hydrology. *Wetlands*, Vol. 13:122-129.
- Ellis, L.M., C.S. Crawford, and M.C. Molles Jr. 2001. Influence of annual flooding on terrestrial arthropod assemblages of a Rio Grande riparian forest. *Regulated Rivers: Research & Management*, Vol. 17:1-20.
- Ewing, M.S. 1991. Turbidity control and fisheries enhancement in a bottomland hardwood backwater system in Louisiana (U.S.A.). *Regulated Rivers: Research & Management*, Vol. 6:87-99.
- Ford, N. B., V.A. Cobb, and J. Stout. 1991. Species diversity and seasonal abundance of snakes in a mixed pine-hardwood forest of eastern Texas. *The Southwestern Naturalist*, Vol. 36:171-177.
- Forsythe, S.W., and J.E. Roelle. 1990. The relationship of human activities to the wildlife function of bottomland hardwood forests: the report of a wildlife workgroup. Pages 533-546 in Gosselink, J.G., L. C. Lee, and T.A. Muir, ed., *Ecological processes and cumulative impacts: illustrated by bottomland hardwood wetland ecosystems*. Lewis Publishers, Inc., Chelsea, MI.
- Franz, E.H., and F.A. Bazzaz. 1977. Simulation of vegetation response to modified hydrologic regimes: a probabilistic model based on niche differentiation in a floodplain forest. *Ecology*, Vol. 58:176-183.
- Fredrickson, L.H. 1979. Floral and faunal changes in lowland hardwood forests in Missouri resulting from channelization, drainage, and impoundment. FWS/OBS-78/91. U.S. Fish and Wildlife Service, Office of Biological Services, Washington, DC.
- Fredrickson, L.H., and F.A. Reid. 1990. Impacts of hydrologic alteration on management of freshwater wetlands. Pages 71-90 in Sweeny, J.M., ed., *Management of dynamic ecosystems*. North Cent. Sect. The Wildl. Soc., West Lafayette, IN.
- Fredrickson, L.H., and F.A. Reed. 1988. Invertebrate response to wetland management. Section 13.3.1 in *Waterfowl Management Handbook*, Fish and Wildlife Leaflet 13. USDOI Fish and Wildlife Service.
- Freeman, M.C., Z.H. Bowen, K.D. Bovee, and E.R. Irwin. 2001. Flow and habitat effects on juvenile fish abundance in natural and altered flow regimes.

- Friedman, J.M., and V.J. Lee. 2002. Extreme floods, channel change, and riparian forests along ephemeral streams. *Ecological Monographs*, Vol. 72:409-425.
- Friedman, J.M., W.R. Osterkamp, M.L. Scott, and G.T. Auble. 1998. Downstream effects of dams on channel geometry and bottomland vegetation: regional patterns in the Great Plains. *Wetlands*, Vol. 18:619-633.
- Gabbe, A.P., S.K. Robinson, and J.D. Brawn. 2002. Tree-species preferences of foraging insectivorous birds: implications for floodplain forest restoration. *Conservation Biology*, Vol. 16:462-470.
- Gali, J. 1991. Thermal impacts associated with urbanization and stormwater best management practices. Metropolitan Washington Council of Governments, Maryland Department of Environment, Washington, DC.
- Gehrke, P.C., D.M. Gilligan, and M. Barwick. 2001. Fish communities and migration in the Shoalhaven River - Before construction of a fishway. NSW Fisheries Final Report Series No. 26. New South Wales Fisheries Office of Conservation, Taylors Beach, NSW, 2316 Australia.
- Gelwick, F.P., B.D. Healy, N.J. Dictson, and R. Knipe. 2001. Fishes of the Keechi Creek wildlife management area of East Texas. *The Texas Journal of Science*, Vol. 53(1):13.
- Gergel, S.E. 2002. Assessing cumulative impacts of levees and dams on floodplain ponds: A neutral-terrain model approach. *Ecological Applications*, Vol. 12(6):1740-1754.
- Gibbons, J., V. Burke, J. Lovich, R. Semlitsch, T. Tuberville, J. Bodie, J. Greene, P. Niewiarowski, H. Whiteman, D. Scott, J. Pechmann, C. Harrison, S. Bennett, J. Krenz, M. Mills, K. Buhlmann, J. Lee, R. Seigel, A. Tucker, T. Mills, T. Lamb, M. Dorcas, and J. Congdon. 1997. Perceptions of species abundance, distribution, and diversity: lessons from four decades of sampling on a government-managed reserve. *Environmental Management*, Vol. 21(2):259-268.
- Gido, K.B., J.F. Schaefer, K. Work, P.W. Lienesch, E. Marsh-Matthews, and W.J. Matthews. 1999. Effects of Red Shiner (*Cyprinella lutrensis*) on Red River Pupfish (*Cyprinodon rubrofluciatilis*). *Southwestern Naturalist*, Vol. 44(3):287-295.
- Glasgow, L., and R. Noble. 1971. The importance of bottomland hardwoods to wildlife. Proceedings of the Symposium on Southeast Hardwoods, Dothan, Alabama, pp 30-43. Department of Agriculture, Forest Service.
- Gosselink, J.G., L.C. Lee, and T.A. Muir. 1990. Ecological processes and cumulative impacts: illustrated by bottomland hardwood wetland ecosystems. Lewis Publishers. Chelsea, Michigan.
- Gosselink, J.G., B.A. Touchet, J. Van Beek, and D.B. Hamilton. 1990. Bottomland hardwood forest ecosystem hydrology and the influence of human activities: the report of the hydrology workgroup. Pages 347-387 in Lee, L.C., and T.A. Muir, ed., *Ecological processes and cumulative impacts*. Lewis Publishers, Inc., Chelsea, MI.
- Gosselink, J.G., M.M. Brinson, L.C. Lee, and G.T. Auble. 1990. Human activities and ecological processes in bottomland hardwood ecosystems: the report of the ecosystem workgroup. Pages 549-598 in Gosselink, J.G., L.C. Lee, and T.A. Muir, *Ecological processes and*

- cumulative impacts: illustrated by bottomland hardwood ecosystems. Lewis Publishers, Chelsea, Michigan.
- Gosselink, J.G., and Lee, L.C. 1989. Cumulative impact assessment in bottomland hardwood forests. *Wetlands*, Vol. 9:83-174.
- Gosselink, J.G., S.E. Bayley, W.H. Conner, and R.E. Turner. 1981. Ecological factors in the determination of riparian wetland boundaries. Pages 197-219 in Clark, J.R., and J. Benforado, eds., *Wetlands of bottomland hardwoods*. Elsevier Scientific Publishing Company, Amsterdam, Netherlands.
- Gregory, S., H. Li, and J. Li. 2002. The conceptual basis for ecological responses to dam removal. *BioScience*, Vol. 52:713-723.
- Guntenspergen, G.R., J.R. Keough, and J. Allen. 1993. Wetland systems and their response to management. Pages 383-390 in G.A. Moshiri (ed.), *Constructed wetlands for water quality improvement*. Lewis Publishers. Boca Raton, FL.
- Gunter, P.A.Y. 2000. Plenary presentation - Leopold's land ethics, Texas and the big thicket: an obligation to the land. *The Texas Journal of Science*, Vol. 52(4):23.
- Guo, Y., M.G. Shelton, and E. Heitzman. 2002. Effects of flood duration and depth on germination of cherrybark, post, southern red, white, and willow oak acorns. *Proceedings of Southern Silvicultural Research Conference*, Gen. Tech. Rep. SRS-48, 622 p. USDA, Forest Service Southern Research Station.
- Guo, Y., M.G. Shelton, B.R. Lockhart. 1998. Effects of flood duration and season on germination of black, cherrybark, northern red, and water oak acorns. *New Forest*, Vol. 15:69-76.
- Hacker, W.D., W.G. Ross, and D.L. Kulhavy. 1999. Changes in understory woody vegetation in Red-Cockaded Woodpecker (*Picoides borealis*) nesting clusters. *The Texas Journal of Science*, Vol. 51(3):225.
- Hajic, E., and Smith, L. Regional variability of factors affecting wetland function. Technical Report in preparation. U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.
- Hardison, B.S., and J.B. Layzer. 2001. Relations between complex hydraulics and the localized distribution of mussels in three regulated rivers. *Regulated Rivers: Research & Management*, Vol. 17:77-84.
- Harris, L.D., and T.E. O'Meara. 1989. Changes in southeastern bottomland forests and impacts on vertebrate fauna. Sharitz, R.R., and J.W. Gibbons, ed., *Freshwater Wetlands and Wildlife*, DOE Symposium Series No. 61. Oak Ridge, TN.
- Harris, R.R., R.J. Risser, and C.A. Fox. 1985. A method for evaluating streamflow discharge - plant species occurrence patterns on headwater streams. Johnson, R.R., C.D. Ziebell, D.R. Patton, P.F. Folliott, and R.H. Hamre, eds. *Riparian ecosystems and their management: reconciling conflicting uses*, General Technical Report RM-120, pp 87-90. United States Forest Service.
- Hart, B.L., and G.D. Lester. 1993. Natural communities and sensitive species assessment on Fort Polk military reservation, LA. Final Report submitted to Department of the Army, Corps of

- Engineers, Washington, DC. Louisiana Department of Wildlife and Fisheries and The Nature Conservancy.
- Hart, D.D., T.E. Johnson, K.L. Bushaw-Newton, R.J. Horwitz, A.T. Bednarek, D.F. Charles, D.A. Dreeger, and D.J. Velinsky. 2002. Dam removal: challenges and opportunities for ecological research and river restoration. *BioScience*, Vol. 52(8):669.
- Hart, D.D., and N.L. Poff. 2002. A special section on dam removal and river restoration. *BioScience*, Vol. 52(8):653.
- Hayes, M.P., and M.R. Jennings. 1988. Habitat correlates of the distribution of California red-legged frog (*Rana aurora draytonii*) and Foothill yellow-legged frog (*Rana boylei*): implications for management. Szaro, R.C., K.D. Severson, D.R. Patton, tech coords. Management of amphibians, reptiles, and small mammals in North America, Gen. Tech. Rep. RM-166, pp 144-158. USDA Forest Service, Rocky Mountain Forest and Range Experiment Station, Fort Collins, Colorado.
- Hayes, M.P., and M.R. Jennings. 1986. Decline of ranid frog species in western North America: are bullfrogs (*Rana catesbeiana*) responsible? *J. Herpetol.*, Vol. 20:490-509.
- Herbert, M.E., and F.P. Gelwick. 2003. Spatial variation of headwater fish assemblages explained by hydrologic variability and upstream effects of impoundment. *Copeia*, 2003(2), pp. 273-284.
- Hesse, I., W. Conner, and J. Day, Jr. 1996. Herbivory impacts on the regeneration of forested wetlands in Louisiana. Proceedings of the Southern Forested Wetlands Ecology and Management Conference. Clemson University, Consortium for Research on Southern Forested Wetlands, Clemson, SC.
- Hilderbrand, R.H., A.D. Lemly, and C.A. Dolloff. 1999. Habitat sequencing and the importance of discharge in inferences. *North American Journal of Fisheries Management*, Vol. 19:198-202.
- Hill, M. T., W.S. Platts, and R.L. Beschta. 1991. Ecological and geomorphological concepts for instream and out-of-channel flow requirements. *Rivers*, Vol. 2:198-210.
- Hochman, E. 1999. Lower Roanoke River optimum hydroperiods: Part I. Altered hydrology and implications for forest health. University of North Carolina: 23, Chapel Hill, NC.
- Hodges, J.D. 1997. Development and ecology of bottomland hardwood sites. *Forest Ecology and Management*, Vol. 90:117-125.
- Hodges, J.D. 1988. Chapter 13 - minor alluvial floodplains in Messina, M.G., and W.H. Conner, ed., *Southern forested wetlands: ecology and management*. Lewis Publishers, Boca Raton, FL.
- Hodges, J.D., G.L Switzer. 1979. Some aspects of the ecology of southern bottomland hardwoods. *North American's forests: gateway to opportunity*, Joint Convention of the Society of American Foresters and the Canadian Institute of Forestry, 1978 October 22-26, St. Louis, MO, Washington, DC., pp 360-365. Society of American Foresters.
- Holden, P.B. 1979. Ecology of riverine fishes in regulated stream systems with emphasis on the Colorado River. Page 5574 in Ward, J.V., and J. A. Stanford, editors, *The ecology of regulated streams*. Plenum Press, New York.

- Hood, W.G., and R.J. Naiman. 2000. Vulnerability of riparian zones to invasion by exotic vascular plants. *Plant Ecology*, Vol. 148:105-114.
- Horner, P., and K. Mirowsky. 1996. East Texas rare bat survey: 1995. Final Report. Texas Parks and Wildlife Department, Resources Protection Division, Austin.
- Howells, R.G., C.M. Mather, and J.A.M. Bergmann. 2000. Impacts of dewatering and cold on freshwater mussels (Unionidae) in B.A. Steinhagen Reservoir, Texas. *The Texas Journal of Science*, Vol. 52(4):93.
- Hubbs, C., E. Marsh-Matthews, W.J. Matthews, and A.A. Anderson. 1997. Changes in fish assemblages in big thicket and East Texas streams from 1953 to 1986. *Texas Journal of Science*, Vol. 49(3)Supplement:67-84.
- Hudson, P.F., and J. Mossa. 1997. Suspended sediment transport effectiveness of three large impounded rivers, U.S. Gulf Coastal Plain. *Eviron. Geol.*, Vol. 32:263-273.
- Huffman, R.T., C. Rhodes, W. Kitchens, W. Conner, W. Harms, S. Harrison, P. Hatcher, L. Holloway, R. Johnson, L. Lee, A. Lucas, S. Ray, D. Sanders, R. Theriot, and J. Wooten. 1987. Vegetation workgroup report. Roelle, J.E., F.T. Auble, D.B. Hamilton, R.L. Johnson, and C. A. Segelquist, eds. Results of a workshop concerning ecological zonation in bottomland hardwoods, NEC-87/14, pp 48-63. U.S. Fish Wildl. Serv, National Ecology Center, Ft. Collins, CO.
- Huffman, R.T., and S.W. Forsythe. 1981. Bottomland hardwood forest communities and their relation to anaerobic soil conditions. Pages 177-185 in Clark, J.R., and J. Benforado, ed., *Wetlands of bottomland hardwoods*. Elsevier Scientific Publishing Company, Amsterdam.
- Hughes, F.M.R., W.M. Adams, E. Muller, C. Nilsson, K.S. Richards, N. Barsoum, H. Decamps, R. Foussadier, J. Girel, H. Guillo, A. Hayes, M. Johansson, L. Lambs, G. Pautou, J.-L. Peiry, M. Perrow, F. Vautier, and M. Winfield. 2001. The importance of different scale processes for the restoration of floodplain woodlands. *Regulated Rivers: Research & Management*, Vol. 17:325-345.
- Hupp, C. R. 2000. Hydrology geomorphology and vegetation of coastal plain rivers in the Southeast U.S. *Hydrological Processes*, Vol. 14 Issue 16-17.
- Hupp, C. R., and W.R. Osterkamp. 1996. Riparian vegetation and fluvial geomorphic processes. *Geomorphology*, Vol. 14:277-295.
- Hupp, C. R., and W.R. Osterkamp. 1985. Bottomland vegetation distribution along Passage Creek, Virginia, in relation to fluvial landforms. *Ecology*, Vol. 66:670-681.
- Hupp, C.R. 1983. Vegetation pattern on channel features in the Passage Creek Gorge, Virginia. *Castanea*, Vol. 48:62-72.
- Hupp, C.R., and M.R. Schening. 1997. Patterns of sedimentation and woody vegetation along black- and brown-water riverine forested wetlands. *Association of Southeastern Biologists Bulletin*, Vol. 44:140.
- Hupp, C.R., and D.D. Bazemore. 1993. Temporal and spatial patterns of wetland sedimentation, west Tennessee. *J Hydrol*, Vol. 141:179-196.

- Hupp, C.R., and A. Simon. 1991. Bank accretion and the development of vegetated depositional surfaces along modified alluvial channels. *Geomorphology*, Vol. 4:111-124.
- Hupp, C.R., and E.E. Morris. 1990. A dendrogeomorphic approach to measurement of sedimentation in a forested wetland. *Wetlands*, Vol. 10:107-124.
- Hupp, C.R., W.C. Carey, and D.D. Bazemore. 1988. Tree growth and species patterns in relation to wetland sedimentation along a reach of the Middle Forked Deer River, west Tennessee. *Association of Southeastern Biologists Bulletin*, Vol. 35:64.
- Jansson, R., C. Nilsson, M. Dynesius, and E. Andersson. 2000. Effects of river regulation on river-margin vegetation: a comparison of eight boreal rivers. *Ecological Applications*, Vol. 10:203-224.
- Jansson, R., C. Nilsson, and B. Renofalt. 2000. Fragmentation of riparian floras in rivers with multiple dams. *Ecology*, Vol. 81:899-903.
- Jennings, M.R. 1988. Natural history and decline of native ranids in California. De Lisle, H.F., P.R. Brown, B. Kaufman, and B.M. McGurty, eds., *Proceedings of the Conference on California Herpetology*, pp 61-72. Southwestern Herpetol. Society, Van Nuys, California.
- Jennings, S. 1999. Implications of stream impoundment on Yegua Creek, Texas. *Journal of Environmental Systems*, Vol. 27(4):293-310.
- Johnson, S.E., and B.E. Graber. 2002. Enlisting the social sciences in decisions about dam removal. *BioScience*, Vol. 52(8):731.
- Johnson, W.C. 1992. Dams and riparian forests: case study from the upper Missouri River. *Rivers*, Vol. 3:229-242.
- Jones, R., and R. Sharitz. 1998. Survival and growth of woody plant seedlings in the understory of floodplain forests in South Carolina. *Journal of Ecology*, Vol. 86:574-587.
- Jones, R., R. Sharitz, S. James, and P. Dixon. 1994. Tree population dynamics in seven South Carolina mixed-species forests. *Bulletin of the Torrey Botanical Club*, Vol. 121:360-368.
- Jones, R., R. Sharitz, P. Dixon, D. Segal, and R. Schneider. 1994. Woody plant regeneration in four floodplain forests. *Ecological Monographs*, Vol. 64:345-367.
- Jones, R., and R. Sharitz. 1990. Effects of root competition and flooding on growth of Chinese tallow tree seedlings. *Canadian Journal of Forest Research*, Vol. 20:573-578.
- Jones, R., and R. Sharitz. 1989. Potential advantages and disadvantages of germinating early for trees in floodplain forests. *Oecologia*, Vol. 81:443-449.
- Junk, W.J., P.B. Bayley, and R.R. Sparks. 1989. The flood pulse concept in river-floodplain systems. *Canadian Journal of Fisheries and Aquatic Sciences- Special Issue*, Vol. 106:110-127.
- Jurgenson, M., D. Richter, M. Davis, M. McKeivlin, and M. Craft. 1997. Mycorrhizal relationships in bottomland hardwood forests of the southern United States. *Wetlands Ecology and Management*, Vol. 4:223-233.

- Karr, B.L., G.L. Young, J.D. Hodges, B.D. Leopold, and R.M. Kaminski. 1990. Effect of flooding on greentree reservoirs. G1571-03. U.S. Department of Interior, Washington, DC.
- Keeland, B., and R. Sharitz. 1997. The effects of water level fluctuations on weekly tree growth in a southeastern USA swamp. *American Journal of Botany*, Vol. 84:131-139.
- Keeland, B., W. Conner, and R. Sharitz. 1997. A comparison of wetland tree growth response to hydrologic regime in Louisiana and South Carolina. *Forest Ecology and Management*, Vol. 90(2,3):237-250.
- Keeland, B., and R. Sharitz. 1995. Seasonal growth patterns of *Nyssa sylvatica* var. *biflora*, *Nyssa aquatica*, and *Taxodium distichum* as affected by hydrologic regime. *Canadian Journal of Forest Research*, Vol. 25:1084-1096.
- Kellison, R.C., and M.J. Young. 1997. The bottomland hardwood forest of the southern United States. *Forest Ecology and Management*, Vol. 90:101-115.
- Kelly, J.P. 1999. An ichthyological survey of the Davy Crockett National Forest, Texas. *The Texas Journal of Science*, Vol. 51(2):115.
- Killgore, K.J., and J.A. Baker. 1996. Patterns of larval fish abundance in a bottomland hardwood wetland. *Wetlands*, Vol. 16:288-295.
- King, S.L. 1996. The effects of flooding on bottomland hardwood seedlings planted in lignite mine spoil in east Texas. *Texas Journal of Science*, Vol. 48(1):75-84.
- King, S.L. 1995. The effects of flooding regimes on two impounded bottomland hardwood stands. *Wetlands*, Vol. 15:272-284.
- King, S.L. 1994. The effects of flooding regimes and green tree reservoir management on succession of bottomland hardwoods. Ph.D. Dissertation, Texas A&M University, College Station, TX.
- Kleiss, B.A. 1996. Sediment retention in a bottomland hardwood wetland in eastern Arkansas. *Wetlands*, Vol. 16:321-333.
- Klimas, C.V. 1987. River regulation effects on floodplain hydrology and ecology. Pages 40-49 in Hook, D.D., et al., *The ecology and management of wetlands*. Croom Helm, London.
- Klimas, C.V., C.O. Martin, and J.W. Teaford. 1981. Impacts of flooding regime modification on wildlife habitats of bottomland hardwood forests in the Lower Mississippi Valley. Technical Report EL-81-13. United States Army Engineer Waterways Experiment Station, Vicksburg, Mississippi.
- Knopf, F.L., and M.L. Scott. 1990. Altered flows and created landscapes in the Platte River headwaters, 1840-1990. Sweeney, J.M., ed. *Management of dynamic ecosystems*, pp 47-70. North Central Section, The Wildlife Society, West Lafayette, Indiana, USA.
- Kopachena, J.G., and C.S. Kollar. 1999. A herpetological survey of three old-field sites at Cooper Lake in Northeast Texas. *The Texas Journal of Science*, Vol. 51(3):211.
- Kozlowski, T.T. 2002. Physiological-ecological impacts of flooding on riparian forest ecosystems. *Wetlands*, Vol. 22(3).

- Lancaster, D.L., and N.B. Ford. 2003. Reproduction in Western Ribbon Snakes, *Thamnophis proximus* (Serpentes: Colubridae), from an East Texas bottomland. *The Texas Journal of Science*, Vol. 55(1):25.
- Lee, L.C., and T.M. Hinckley. 1982. Impact of water level changes on woody riparian and wetland communities. Vol. IX, FWS/OBS-82/22. Fish and Wildlife Service.
- Lewis, S.D., F.R. Fleet, and F.L. Rainwater. 2000. Herpetofaunal assemblages of four forest types in the Big Sandy Creek unit of the Big Thicket National Preserve. *The Texas Journal of Science*, Vol. 52(4):139.
- Lienesch, P.W., W.I. Lutterschmidt, and J.F. Schaefer. 2000. Seasonal and long-term changes in the fish assemblage of a small stream isolated by a reservoir. *The Southwestern Naturalist*, Vol. 45(3).
- Light, H.M., M.R. Darst, and J.W. Grubbs. 1998. Aquatic habitats in relation to river flow in the Apalachicola River floodplain, Florida. U.S. Geological Survey Professional Paper 1594. U.S. Geological Survey, Water Resources Division, Florida District, U.S. Geological Survey, Tallahassee, Florida, USA.
- Light, H.M., M.R. Darst, L.J. Lewis, and D.A. Howell. 2002. Hydrology, Vegetation, and Soils of Riverine and Tidal Floodplain Forests of the Lower Suwannee River, Florida, and Potential Impacts of Flow Reductions. U.S. Geological Survey Professional Paper 1656A.
- Ligon, F.K., W.E. Dietrich, and W.J. Trush. 1995. Downstream ecological effects of dams, a geomorphic perspective. *BioScience*, Vol. 45:183-192.
- Lind, A.J., H.H. Welsh, Jr., and R.A. Wilson. 1996. The effects of a dam on breeding habitat and egg survival of the Foothill Yellow-legged Frog (*Rana boylei*) in Northwestern California. *Herpetological Review*, Vol. 27(2):62-67.
- Lock, P.A., and R.J. Naiman. 1998. Effects of stream size on bird community structure in coastal temperate forests of the Pacific Northwest, U.S.A. *Journal of Biogeography*, Vol. 25:773-782.
- Lorenz, C.M., G.M. Van Dijk, A.G.M. Van Hattum, and W.P. Cofino. 1997. Concepts in river ecology: implications for indicator development. *Regl. Rivers: Res. Mgmt*, Vol. 13:501-516.
- Lydeard, C., and R. Mayden. 1995. A diverse and endangered aquatic ecosystem of the Southeast United States. *Conservation Biology*, Vol. 9(4):800-805.
- Malanson, G.P. 1993. Riparian landscapes in Malanson, G.P., Riparian landscapes. Cambridge University Press, New York, New York, USA.
- Malecki, R.A., J.R. Lassoie, E. Rieger, and T. Seamans. 1983. Effects of long-term artificial flooding on a northern bottomland hardwood community. *Forest Science*, Vol. 29:535-544.
- Maridet, L., J.-B. Wasson, M. Phillippe, C. Andros, and R.J. Naiman. 1998. Riparian and morphological controls in structuring the macroinvertebrate stream community. *Archiv fur Hydrobiologie*, Vol. 144:61-85.
- Matthews, W.J., and E. Marsh-Matthews. 2003. Effects of drought on fish across axes of space, time and ecological complexity. *Freshwater Biology*, Vol. 48:1232-1253.

- Matthews, W.J., and J.T. Styron. 1980. Tolerance of headwater vs. mainstream fishes for abrupt physicochemical changes. *American Midland Naturalist*, Vol. 105:149-158.
- McBride, J.R., and J. Strahan. 1983. Establishment and survival of woody riparian species on gravel bars of an intermittent stream. *American Midland Naturalist*, Vol. 112:235-245.
- McComb, W.C., and R.C. Noble. 1980. Small mammal and bird use of some unmanaged and managed forest stands in the mid-South. *Proceedings Annual Conference Southeastern Association of Fish and Wildlife Agencies*, Vol. 34:482-491.
- McKinney, T., A.D. Ayers, and R.S. Rogers. 1999. Macroinvertebrate drift in the tailwater of a regulated river below Glen Canyon Dam, Arizona. *The Southwestern Naturalist*, Vol. 44(2).
- McWilliams, W.H., J.F. Rosson, Jr. 1990. Composition and vulnerability of bottomland hardwood forests of the Coastal Plain province in South Central United States. *Forest Ecology and Management*, Vol. 33/34:425-501.
- Megonigal, J., W. Conner, and R. Sharitz. 1997. Aboveground production in southeastern floodplain forests: a test of the subsidy-stress hypothesis. *Ecology*, Vol. 78(2):370-384.
- Merritt, D.M., and D.J. Cooper. 2000. Riparian vegetation and channel change in response to river regulation: a comparative study of regulated and unregulated streams in the Green River Basin, USA. *Regulated Rivers: Research & Management*, Vol. 16:543-564.
- Messina, M.G., S.H. Schoenholtz, M.W. Lowe, Z. Wang, D.K. Gunter, and A.J. Londo. 1997. Initial responses of woody vegetation, water quality, and soils to harvesting intensity in a Texas bottomland hardwood ecosystem. *Forest Ecology and Management*, Vol. 90:201-215.
- Metter, D.E.. 1961. Water levels as an environmental factor in breeding season of *Bufo boreas boreas*. *Copeia*, Vol. 1961:488.
- Meyer, J., M. Alber, W. Duncan, M. Freeman, C. Hale, R. Jackson, C. Jenings, M. Palta, E. Richardson, R. Sharitz, J. Sheldon, and R. Wyers. 2003. Summary report supporting the development of ecosystem flow recommendations for the Savannah River below Thurmond Dam. Summary Report 6/03. University of Georgia. www.rivercenter.uga.edu/pdfs/.
- Middleton, B.A. 2002. *The flood pulse concept in wetland restoration*. John Wiley and Sons, Inc.
- Middleton, B.A., ed. 2002. *Flood pulsing in wetlands: restoring the natural hydrological balance*. John Wiley and Sons, New York, NY.
- Miller, N.A. 1985. A vegetation-habitat study along a portion of the North Forked Deer River in West Tennessee. *Journal of the Tennessee Academy of Science*, Vol. 60:51-56.
- Mills, M., C. Hudson, and H. Berna. 1995. Spatial ecology and movements of the brown water snake (*Nerodia taxispilota*). *Herpetologica*, Vol. 51:412-423.
- Mitsch, W.J., and J.G. Gosselink. 1993. Second edition. *Wetlands*. Van Nostrand Reinhold Co., New York, New York, USA.
- Munoz, I., and N. Prat. 1989. Effects of river regulation on the lower Ebro River (NE Spain). *Regulated Rivers: Research & Management*, Vol. 3:345-354.

- Murkin, H.R., and J.A. Kadlec. 1986. Responses by benthic macroinvertebrates to prolonged flooding of marsh habitat. *Can. J. Zool.*, Vol. 64:65-72.
- Mutz, M. 2000. Influences of woody debris on flow patterns and channel morphology in a low energy, sand-bed stream reach. *International Review of Hydrobiology*, Vol. 85:107-121.
- Naiman, R.J., and K.L. Fetherston. 2000. The role of floods in the establishment of riparian forests. *Canadian Journal Fisheries and Aquatic Sciences*.
- Naiman, R.J., S.R. Elliot, J.M. Helfield, and T. O'Keefe. 1999. Biophysical influences on the structure and dynamics of riverine communities: some new perspectives in stream ecology. *Hydrobiologia*, Vol. 410:79-86.
- Naiman, R.J., K.L. Fetherston, S. McKay, and J. Chen. 1998. Riparian forests. Pages 289-323 in Naiman, R.J., R.E. Bilby (eds), *River ecology and management: lessons from the Pacific Coastal Ecoregion*. Springer-Verlag, New York.
- Naiman, R.J., and H. Decamps. 1997. The ecology of interfaces - riparian zones. *Annual Review of Ecology and Systematics*, Vol. 28:621-658.
- Naiman, R.J., H. Decamps, J. Pastor, and C.A. Johnstone. 1988. The potential importance of boundaries to fluvial ecosystems. *Journal of the North American Benthological Society*, Vol. 7(4):289-306.
- National Research Council. 1992. *Impacts of emerging agricultural trends on fish and wildlife habitat*. National Academy Press. Washington, DC.
- NCASI. 2001. *Headwater streams project - abstracted/annotated bibliography*. National Council for Air and Stream Improvement (NCASI).
- Neal, J.A., and E.S. Jemison. 1990. The Texas/Oklahoma bottomland hardwood forest protection program. Pages 325-3342 in Gosselink, J.G., L.C. Lee, and T.A. Muir, ed., *Ecological processes and cumulative impacts: illustrated by bottomland hardwood wetland ecosystems*. Lewis Publishing, Inc., Chelsea, MI.
- Nestler, J.M., K.S. Long. 1998. Development of hydrological indices to aid cumulative impact analysis of riverine wetlands. *Regulated Rivers: Research & Management*, Vol. 13:317-334.
- Nestler, J.M., and K.S. Long. 1994. *Cumulative impact analysis of wetlands using hydrologic indices*. Technical Report WRP-SM-3. U.S. Army Engineers Waterways Experiment Station, Vicksburg, Mississippi, USA.
- Newling, C.J. 1982. *Ecological investigation of a greentree reservoir in the Delta National Forest, Mississippi*. EL-81-5. U.S. Army Corps of Engineers Waterways Experiment Station Environmental Laboratory, Vicksburg, MS.
- Niemi, G.J., P. DeVore, N. Detenbeck, D. Taylor, A. Lima, J. Pastor, J.D. Yount, and R.J. Naiman. 1990. An overview of case studies on recovering of aquatic systems from disturbance. *Environmental Management*, Vol. 14:571-587.

- Nijjer, S., R.A. Lankau, W.E. Rogers, and E. Siemann. 2002. Effects of temperature and light on Chinese Tallow (*Sapium sebiferum*) and Texas Sugarberry (*Celis laevigata*) seed germination. *The Texas Journal of Science*, Vol. 54(1):63.
- Nilsson, C., and K. Berggren. 2000. Alterations of riparian ecosystems caused by river regulation. *BioScience*, Vol. 50(9):783-792.
- Nilsson, C., A. Ekblad, M. Gardfjell, and B. Carlberg. 1997. Long-term effects of river regulation on river margin vegetation. *Journal of Applied Ecology*, Vol. 28:963-987.
- Nixon, E.S., G.A. Sullivan, S.D. Jones, G.D. Jones, and J.K. Sullivan. 1990. Species diversity of woody vegetation in the Trinity River Basin, Texas. *Castanea*, Vol. 55(2):97-105.
- Nixon, E.S.. 1986. Bottomland community structure in east Texas. McMahan, C.A. and R.G. Frye, eds., *Bottomland hardwoods in Texas, Proceedings of an Interagency Workshop on Status and Ecology, 6-7 May, 1986, Nacogdoches, TX, Publication #PWD-RP-7100-133-3/87*, pp. 8-19. Texas Parks and Wildlife Department, Austin, TX.
- Oberlin, G.E., J.P. Shannon, and D.W. Blinn. 1999. Watershed influence on the macroinvertebrate fauna of ten major tributaries of the Colorado River through Grand Canyon, Arizona. *The Southwestern Naturalist*, Vol. 44(1).
- Olden, J.D., and N.L. Poff. 2004. Toward a mechanistic understanding and prediction of biotic homogenization. *The American Naturalist*, Vol. 162(4):442-460.
- Olden, J.D., and N.L. Poff. 2003. Redundancy and the choice of hydrologic indices for characterizing streamflow regimes. *River Research and Applications*, Vol. 19:101-121.
- Olden, J.D., D.A. Jackson, and P.R. Peres-Neto. 2001. Spatial isolation and fish communities in drainage lakes. *Oecologia*, Vol. 127:572-585.
- O'Neil, R.V., A.R. Johnson, and A. W. King. 1989. A hierarchical framework for the analysis of scale. *Landscape Ecology*, Vol. 3:193-205.
- Osterkamp, W.R., and C.R. Hupp. 1984. Geomorphic and vegetative characteristics along three northern Virginia streams. *Geological Society of America Bulletin*, Vol. 95:1093-1101.
- Patterson, G.G., G.K. Speiran, and B.H. Whetstone. 1985. Hydrology and its effects on distribution of vegetation in Congaree National Monument, South Carolina. *Water-Resources Investigations Report 85-4256*.
- Pearlstine, L., H. McKeller, and W. Kitchens. 1985. Modeling the impacts of a river diversion on bottomland forest communities in the Santee River floodplain, South Carolina. *Ecological Modeling*, Vol. 29:283-302.
- Pechmann, J., D. Scott, J. Gibbons, and R. Semlitsch. 1989. Influence of wetland hydroperiod on diversity and abundance of metamorphosing juvenile amphibians. *Wetland Ecology and Management*, Vol. 1(1):3-11.
- Pechmann, J.H.K., and H.M. Wilbur. 1994. Putting declining amphibian populations in perspective: natural fluctuations and human impacts. *Herpetologica*, Vol. 50:65-84.

- Pechmann, J.H.K., D.E. Scott, R.D. Semlitsch, J.P. Caldwell, L.J. Vitt, and J.W. Gibbons. 1991. Declining amphibian populations: the problem of separating human impacts from natural fluctuations. *Science*, Vol. 253:892-895.
- Peterson, M.S. 1986. *River engineering*. Prentice-Hall, Englewood Cliffs, New Jersey.
- Petts, G.E., A.R.G. Large, M.T. Greenwood, and M.A. Bickerton. 1992. Floodplain assessment for restoration and conservation: linking hydrogeomorphology and ecology. Pages 217-234 in Carling, P.A. and G.E. Petts, *Lowland floodplain rivers: geomorphological perspectives*. John Wiley & Sons, Chichester, U.K.
- Petts, G.E.. 1980. Long-term consequences of upstream impoundment. *Environmental Conservation*, Vol. 7:325-332.
- Petts, G.E., and J. Lewin. 1979. Physical effects of reservoirs on river systems. Pages 79-91 in Hollis, G.E., *Man's impact on the hydrological cycle in the United Kingdom*. Geo Abstracts Ltd., Norwich, U.K.
- Phillips, E.C. 2001. Life history, food habits and production of *Progomphus obscurus* Rambur (Odonata: Gomphidae) in Harmon Creek of East Texas. *The Texas Journal of Science*, Vol. 53(1):19.
- Phillips, J.D. 2003. Toledo Bend Reservoir and geomorphic response in the lower Sabine River. *River Research and Applications*, Vol. 19:137-159.
- Phillips, J.D. 2001. Sedimentation in bottomland hardwoods downstream of an east Texas dam. *Environmental Geology*, Vol. 40:860-868.
- Phillips, J.D. 1992. The source of alluvium in large rivers of the lower Coastal Plain of North Carolina. *Catena*, Vol. 19:59-75.
- Phillips, J.D. 1992. Delivery of upper-basin sediment to the lower Neuse River, North Carolina. *Earth Surface Process Landforms*, Vol. 17:699-709.
- Phillips, J.D., and Z. Musselman. 2003. The effect of dams on fluvial sediment delivery to the Texas coast. *Proceedings of the International Conference of Coastal Sediments 2003*, Clearwater Beach, Florida.
- Pickup, G., and R.F. Warner. 1976. Effects of hydrologic regime on the magnitude and frequency of dominant discharge. *Journal of Hydrology*, Vol. 29:51-75.
- Pictet, S.T.A., and P.S. White. 1985. *The ecology of natural disturbance and patch dynamics*. Academic Press, New York.
- Pizzuto, J. 2002. Effects of dam removal on river form and process. *BioScience*, Vol. 52(8):683.
- Poff, N.L., and D.D. Hart. 2002. How dams vary and why it matters for the emerging science of dam removal. *BioScience*, Vol. 52(8):659.
- Poff, N.L., J.D. Allen, M.B. Bain, J.R. Karr, K.L. Restegard, B.D. Richter, R.E. Sparks, and J.C. Stromberg. 1997. The natural flow regime: a paradigm for river conservation and restoration. *BioScience*, Vol. 47:767-784.

- Poteet, M.L., R.E. Thill, R.M. Whiting Jr., and R.L. Rayburn. 1996. Deer Use of Riparian Zones and Adjacent Pine Plantations in Texas. *Proc. Annu. Conf. SEAFWA* 50:541-549.
- Power, M.E., W.E. Dietrich, and J.C. Finlay. Dams and downstream aquatic biodiversity: potential food web consequences of hydrologic and geomorphic change. In revision. *Environmental Management*.
- Pringle, C.M., M.C. Freeman, and B.J. Freeman. 2000. Regional effects of hydrologic alterations on riverine macrobiota in the New World: tropical-temperate comparisons. *BioScience*, Vol. 50:807-823.
- Quinn, G.P., T.J. Hillman, and R. Cook. 2000. The response of macroinvertebrates to inundation in floodplain wetlands: a possible effect of river regulation? *Regulated Rivers: Research & Management*, Vol. 16:469-477.
- Rader, R.B., and T.A. Belish. 1999. Influence of mild to severe flow alterations on invertebrates in three mountain streams. *Regulated Rivers: Research & Management*, Vol. 15:353-363.
- Rasmussen, J.L. 1999. Natural floodplain ecosystems. <http://www.waux.cerc.cr.usgs.gov/MICRA/Natural%20Floodplain%20Ecosystems.pdf>.
- Rasmussen, J.L. 1996. Floodplain management. *Fisheries*, Vol. 21:6-10.
- Reese, D.A. 1996. Comparative demography and habitat use of western pond turtles in northern California: the effects of damming and related alterations. PhD Diss. University of California, Berkeley.
- Reice, S.R., R.C. Wissmar, and R.J. Naiman. 1990. Influence of spatial-temporal heterogeneity and background disturbance regime on the recovery of lotic ecosystems. *Environmental Management*, Vol. 14:647-659.
- Reid, F.A. 1985. Wetland invertebrates in relation to hydrology and water chemistry. M.D. Knighton, ed. *Water Impoundments for Wildlife: A Habitat Management Workshop*, pp 72-79. U.S. Dep. Agric. For. Serv., St. Paul, Minnesota.
- Reily, P.W., and W.C. Johnson. 1982. The effects of altered hydrological regime on tree growth along the Missouri River in North Dakota. *Canadian Journal of Botany*, Vol. 60:2410-2423.
- Resh, V.H., A.V. Brown, A.P. Covich, M.E. Gurtz, H.W. Li, G.W. Minshall, S.R. Reice, A.L. Sheldon, J.B. Wallace, and R.C. Wissmar. 1988. The role of disturbance in stream ecology. *Journal of the North American Benthological Society*, Vol. 7:433-455.
- Reynolds, L., and W.A. Mitchell. 1998. Species profile: Southeastern myotis (*Myotis austroriparius*) on military installations in the southeastern United States. Tech. Rep. SERDP-98-8. U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.
- Richter, B.D., et.al. 2003. Ecologically sustainable water management: managing river flows for ecological integrity. *Ecological Applications*, Vol. 13(1):206-224.
- Richter, B.D., and H.E. Richter. 2000. Prescribing flood regimes to sustain riparian ecosystems along meandering rivers. *Conservation Biology*, Vol. 14(5):1467-1478.

- Richter, B.D., J.V. Baumgartner, D.P. Braun, and J. Powell. 1999. A spatial assessment of hydrologic alteration within a river network. *Regulated Rivers: Research & Management*, Vol. 14:329-340.
- Richter, B.D., D.P. Braun, M.A. Mendelson, and L.L. Master. 1997. Threats to imperiled freshwater fauna. *Conservation Biology*, Vol. 11:1081-1093.
- Richter, B.D., J.V. Baumgartner, R. Wigington, and D.P. Braun. 1997. How much water does a river need? *Freshwater Biology*, Vol. 37:231-249.
- Richter, B.D., J.V. Baumgartner, J. Powell, and D.P. Braun. 1996. A method for assessing hydrologic alteration within ecosystems. *Conservation Biology*, Vol. 10:1163-1174.
- Rizzo, W.M., P. Rafferty, and M.R. Segura. 2000. Surface water quality of the major drainage basins of Big Thicket National Preserve, Texas. *The Texas Journal of Science*, Vol. 52(4):79.
- Robbins, M., C. Rein, and M. Volkin. 2003. The Goldstripe Darter (*Etheostoma parvipinne*) and its tolerance to low pH in an East Texas pond. *The Texas Journal of Science*, Vol. 55(1):87.
- Roelle, J.E., G.T. Auble, and J.G. Gosselink. 1990. Chapter 1. Introduction. Pages 1-8 in Gosselink, J.G., L.C. Lee, T.A. Muir, *Ecological processes and cumulative impacts: illustrated by bottomland hardwood ecosystems*. Lewis Publishers, Chelsea, Michigan.
- Rood, S.B., and J.M. Mahoney. 1990. Collapse of riparian poplar forests downstream from dams in western prairies: probable causes and prospects for mitigation. *Environmental Management*, Vol. 14:451-464.
- Rosenberg, D.M., P. McCully, and C.M. Pringle. 2000. Global-scale environmental effects of hydrological alterations: introduction. *BioScience*, Vol. 50(9):746.
- Rudis, V.A. 2003. Nonnative plant invasions and forest fragmentation at multiple scales: perspectives from ongoing regional forest resource surveys. *Southeastern Biology*, Vol. 50(2):202-203. Association of Southeastern Biologists 64th Annual Meeting, 2003 April 9-12, Washington, DC, *Southeastern Biology* 50(2):202-203. National Commission on Science for Sustainable Forestry and the Southeast Chapter of the Ecological Society of America.
- Rudis, V.A. 2001. Composition, potential for old growth, fragmentation, and ownership of Mississippi Alluvial Valley bottomland hardwoods: a regional assessment of historic change. Hamel, P.B., T.L Foti, tech. eds. *Bottomland hardwoods of the Mississippi Alluvial Valley: characteristics and management of natural function, structure, and composition: proceedings of a symposium held during the Natural Areas conference; 1995 October* U.S. Department of Agriculture, Forest Service, Southern Research Station, Asheville, NC.
- Rudis, V.A. 1995. Regional forest fragmentation effects on bottomland hardwood community types and resource values. *Landscape Ecology*, Vol. 10(5):291-307.
- Rudis, V.A. 1988. Nontimber forest resource report for east Texas. USDA-FS-RB-SO-139.
- Rudis, V.A., and J.B. Tansey. 1995. Regional assessment of remote forests and black bear habitat from forest resource surveys. *Journal of Wildlife Management*, Vol. 59(1):170-180.
- Rudolph, D.C., and J.G. Dickson. 1990. Streamside zone width and amphibian and reptile abundance. *The Southwestern Naturalist*, Vol. 35:472-476.

- Rudolph, R.R., and C.G. Hunter. 1964. Green-trees and greenheads. Linduska, J.P. (ed.). *Waterfowl Tomorrow*, pp 611-618. U.S. Department of Interior, Washington, DC.
- Schlaegel, B.E. 1984. Long-term artificial annual flooding reduces nuttall oak bole growth. Research Note SO-309. U.S. Forest Service, New Orleans, LA.
- Schlosser, I.J. 1985. Flow regime, juvenile abundance, and the assemblage structure of stream fishes. *Ecology*, Vol. 66:1484-1490.
- Schlosser, I.J., and J.R. Karr. 1981. Water quality in agricultural watersheds: impact of riparian vegetation during base flow. *Water Resources Bulletin*, Vol. 17:233-240.
- Schneider, R., and R. Sharitz. 1988. Hydrochory and regeneration in a bald cypress-water tupelo swamp forest. *Ecology*, Vol. 69(4):1055-1063.
- Schneider, R., and R. Sharitz. 1986. Seed bank dynamics in a southeastern riverine swamp. *American Journal of Botany*, Vol. 73(7):1022-1030.
- Schneider, R.L., N.E. Martin, and R.R. Sharitz. 1989. Impact of dam operations on hydrology and associated floodplain forests of southeastern rivers. Sharitz, R.R. and J.W. Gibbons (eds.). *Freshwater Wetlands and Wildlife*. U.S. Department of Energy Symposium Series 61, CONF-8603101, pp 1113-1122. U.S. Department of Energy Office of Scientific and Technical Information, Oak Ridge, TN.
- Schnitzler, A. 1994. Conservation of biodiversity in alluvial hardwood forests of the temperate zone: the example of the Rhine Valley. *Forest Ecology and Management*, Vol. 68:385-398.
- Scott, M.L., S.K. Skagen, and M.F. Merligiano. 2003. Relating geomorphic change and grazing to avian communities in riparian forests. *Conservation Biology*, Vol. 17(1):284.
- Scott, M.L., P.B. Shafroth, and G.T. Auble. 1999. Responses of riparian cottonwoods to alluvial water table declines. *Environmental Management*, Vol. 23:347-358.
- Scott, M.L., J.M. Friedman, and G.T. Auble. 1996. Fluvial process and the establishment of bottomland trees. *Geomorphology*, Vol. 14:327-339.
- Scott, M.L., B.A. Kleiss, W.H. Patrick, C.A. Segelquist with Panel. 1990. The effect of developmental activities on water quality functions of bottomland hardwood ecosystems: the report of the water quality workgroup. Pages 411-453 in Gosselink, J.G., L.C. Lee, and T.A. Muir (eds.), *Ecological processes and cumulative impacts: illustrated by bottomland hardwood wetland ecosystems*. Lewis Publishers, Chelsea, Michigan.
- Scott, M.L., B.A. Kleiss, W.H. Patrick, and C.A. Segelquist. 1990. Effect of developmental activities on water quality functions of bottomland hardwood ecosystems: the report of the water quality workgroup. Pages 411-453 in Gosselink, J.G., L.C. Lee, and T. Muir, *Ecological processes and cumulative impacts: illustrated by bottomland hardwood wetland ecosystems*. Lewis Publishers, Chelsea, MI.
- Scott, M.L., W.L. Slason, C.A. Segelquist, and G.T. Auble. 1989. Correspondence between vegetation and soils in wetlands and nearby uplands. *Wetlands*, Vol. 9:41-60.

- Scott, M.L., S.K. Skagen, and M.F. Merligiano. Bird diversity and geomorphic change in riparian forests. *Journal of Conservation Biology*
- Shackelford, C.E., and R.N. Conner. 1996. Woodland Birds in Three Different Forest Types in Eastern Texas. *Bulletin of the Texas Ornithological Society*, Vol. 29(1-2).
- Shafroth, P.B. Natural hydrologic regimes and fluvial processes: foundations for successful riparian restoration. *Southwest Hydrology*.
- Shafroth, P.B., J.M. Friedman, G.T. Auble, M.L. Scott, and J.H. Braathne. 2002. Potential responses of riparian vegetation to dam removal. *BioScience*, Vol. 52:703-712.
- Shafroth, P.B., J.C. Stromberg, and D.T. Patten. 2002. Riparian vegetation response to altered disturbance and stress regimes. *Ecological Applications*, Vol. 12:107-123.
- Shafroth, P.B., J.C. Stromberg, and D.T. Patten. 2000. Woody riparian vegetation response to different alluvial water table regimes. *Western North American Naturalist*, Vol. 60:66-76.
- Shafroth, P.B., G.T. Auble, J.C. Stromberg, and D.T. Patten. 1998. Establishment of woody riparian vegetation in relation to annual patterns of streamflow, Bill Williams River, Arizona. *Wetlands*, Vol. 18:577-590.
- Sharitz, R.R., and W.J. Mitsch. 1993. Southern floodplain forests. Pages 311-372 in Martin, W.H., S.G. Boyce, and A.C. Echternacht (eds.), *Biodiversity of the Southeastern United States: lowland terrestrial communities*. John Wiley & Sons, New York, NY.
- Sharitz, R.R., R.L. Schneider, and L.C. Lee. 1990. Composition and regeneration of a disturbed river floodplain forest in South Carolina. Pages 195-218 in Gosselink, J.G., L.C. Lee, and T.A. Muir (eds.) in *Ecological processes and cumulative impacts: illustrated by bottomland hardwood wetland ecosystems*. Lewis Publishers, Chelsea, Michigan.
- Shear, T.H., T.J. Lent, and S. Fraver. 1996. Comparison of restored and mature bottomland hardwood forests of Southwestern Kentucky. *Restoration Ecology*, Vol. 4(2):111-123.
- Shields, F.D., Jr., S.S. Knight, and C.M. Cooper. 1994. Effects of channel incision on base flow stream habitats and fishes. *Environmental Management*, Vol. 18:43-57.
- Skalar, F.H., and W.H. Conner. 1979. Effects of altered hydrology on primary production and aquatic animal populations in a Louisiana swamp forest. Day, J.W., D.D. Culley, Jr., R.E. Turner, and A.J. Mumphy, Jr., eds. *Proc. Third Coastal Marsh and Estuary Management Symposium*, pp 191-208. Louisiana State University Division of Continuing Education, Baton Rouge, LA.
- Smith, R.D., A. Ammann, C. Bartoldus, and M.M. Brinson. 1995. An approach for assessing wetland functions using hydrogeomorphic classification, reference wetlands, and functional indices. Technical Report WRP-DE-9. USACE, Wetlands Research Program, Waterways Experiment Station, Vicksburg, MS.
- Smock, L.A., E. Gilinsky, and D.L. Stoneburner. 1985. Macroinvertebrate production in a southeastern U.S. blackwater stream. *Ecology*, Vol. 66:1491-1503.

- Snaddon, C.D., and B.R. Davies. 1999. A preliminary assessment of the effects of a small south african inter-basin water transfer on discharge and invertebrate community structure. *Regulated Rivers: Research & Management*, Vol. 14:421-441.
- Solis, R.S., W.L. Longley, and G. Malstaff. 1994. Influence of inflow on sediment deposition in delta and bay systems. *Freshwater inflows to Texas bays and estuaries*, pp 56-70. Texas Water Development Board, Austin.
- Sommer, T., B. Harrell, M. Nobriga, R. Brown, P. Mole, W. Kimmerer, and L. Schemel. 2001. California's Yolo Bypass: evidence that flood control can be compatible with fisheries, wetlands, wildlife, and agriculture. *Fisheries*, Vol. 26:6-16.
- South Florida Water Management District (SFWMD). 2002. Technical documentation to support development of minimum flows and levels from the Northwest Fork of the Loxahatchee River. www.sfwmd.gov/org/wsd/mfl/loxmfl/docsnov2002.html.
- Sparks, R.E., J.C. Nelson, and Y. Yin. 1998. Naturalization and the flood regime in regulated rivers. *BioScience*, Vol. 48:706-720.
- Sparks, R.E., P.B. Bayley, S.L. Kohler, and L.L. Osborne. 1990. Disturbance and recovery of large floodplain rivers. *Environmental Management*, Vol. 14:699-709.
- Stalnaker, C., and D. Crawford. 1998. Impounded river systems. Pages 69-72 in Mac, M.J., P.A. Opler, C.E. Puckett Haecker, and P.D. Doran, Status and trends of the nation's biological resources: Washington, D.C. USGS. www.fort.usgs/products/publications/3262/3262.asp.
- Stanford, J.A., and J.V. Ward. 1985. The effects of regulation on the limnology of the Gunnison River: a North American case history. Pages 467-480 in Lillehammer, and S. Saltveit, eds., *Regulated rivers*. Universitetsforlaget As., Oslo, Norway.
- Stanley, E.H., and M.W. Doyle. 2002. A geomorphic perspective on nutrient retention following dam removal. *BioScience*, Vol. 52(8):693.
- Stanturf, J.A., S.H. Schoenholtz, C.J. Schweitzer, and J.P. Shepard. 2001. Achieving restoration success: myths in bottomland hardwood forests. *Restoration Ecology*, Vol. 9:189-210.
- Stauffer, D.F., and L.B. Best. 1980. Habitat selection by birds of riparian communities: evaluating effects of habitat alterations. *Journal of Wildlife Management*, Vol. 44(1):1-15.
- Straney, D., L. Briese, and M. Smith. 1974. Bird diversity and thermal stress in a cypress swamp. *Thermal Ecology Symposium Series*, pp 572-578. Oak Ridge National Laboratory.
- Streng, D.R., J.S. Glitzenstein, and P.A. Harcombe. 1989. Woody seedling dynamics in an East Texas floodplain forest. *Ecological Monographs*, Vol. 59:177-204.
- Swanson, G.A., and M.I. Meyer. 1977. Impact of fluctuating water levels on feeding ecology of breeding blue-winged teal. *Journal of Wildlife Management*, Vol. 41:426-433.
- Tabacchi, E., L. Lambs, H. Guilloy, A. Planty-Tabacchi, E. Muller, and H. Decamps. 2000. Impacts of riparian vegetation on hydrological processes. *Hydrological Processes*, Vol. 14(16-17):2959-2976.

- Tabacchi, E., D.L. Correll, R. Hauer, G. Pinay, A.-M. Plantly-Tabacchi, and R.C. Wissmar. 1998. Development, maintenance and role of riparian vegetation in the river landscape. *Freshwater Biology*, Vol. 40:497-516.
- Taylor, C.A., J.H. Knouft, and Tim M. Hiland. 2001. Consequences of stream impoundment on fish communities in a small North American drainage. *Regulated Rivers: Research & Management*, Vol. 17:687-698.
- Teskey, R.O., and T.M. Hinckley. 1978. Impact of water level changes on woody riparian and wetland communities, vols I, II, and III. FWS/OBS-77/58, -77/59, and -77/60. U.S. Department of Agriculture, Fish and Wildlife Service.
- Teskey, R.O., and T.M. Hinckley. 1977. Impact of water level changes on woody riparian and wetland communities, Vol. II. The southern forest region. FWS/OBS-77/59, 46 p. Wildl. Serv., Biological Serv. Program, Washington, DC.
- Teskey, R.O., and T.M. Hinckley. 1977. Impact of water level changes on woody riparian and wetland communities. Volume 1: plant and soil responses to flooding. FWS/OBS-77/58. United States Department of the Interior, Fish and Wildlife Service, Office of Biological Services.
- Theriot, R.F. 1993. Flood tolerance of plant species in bottomland forests of the Southeastern United States. Wetlands Research Program Technical Report WRP-DE-6. U.S. Army Corps of Engineers.
- Thoms, M.C., and K.F. Walker. 1992. Channel changes related to low-level weirs on the river murray, South Australia. Pages 235-249 in P.A. Carling and G.E. Petts, eds., *Lowland floodplain rivers: geomorphological perspectives*. John Wiley and Sons Ltd., Chichester, UK.
- Thorp, J.H., E.M. McEwan, M.F. Flynn, and F.R. Hauer. 1990. Invertebrate colonization of submerged wood in a cypress-tupelo swamp and blackwater stream. *American Midland Naturalist*, Vol. 113:56-68.
- Townsend, C.R. 1989. The patch dynamics concept of stream community ecology. *Journal of the North American Benthological Society*, Vol. 8:36-50.
- Townsend, P., and D. Butler. 1996. Patterns of landscape use by beaver on the lower Roanoke River floodplain, North Carolina. *Physical Geography*, Vol. 17(3):253-269.
- Tramer, E.J. 1996. Riparian deciduous forest. *Journal of Field Ornithology*, Vol. 67(4)(Supplement):44.
- Travis, J. 1994. Calibrating our expectations in studying amphibian populations. *Herpetologica*, Vol. 50:104-108.
- Trayler T. 2000. Stream ecology. Report #RR7. Water and Rivers Commission, Australia.
- Trush, B. and S. McBain. 2000. Alluvial River Ecosystem Attributes. Stream Notes, January 2000. Published by the Stream Systems Technology Center, Rocky Mountain Research Station, USDA Forest Service. Fort Collins, Colorado.
- Tuberville, T., J. Gibbons, and J. Greene. 1996. Invasion of new aquatic habitats by male freshwater turtles. *Copeia*, Vol. 1996(3):713-715.

- Twedt, D.J., R.R. Wilson, J.L. Henne-Kerr, D.A. Grosshuesch. 2002. Avian response to bottomland hardwood reforestation: the first 10 years. *Restoration Ecology*, Vol. 10:645-655.
- Twedt, D.J., and C.R. Loesch. 1999. Forest area and distribution in the Mississippi alluvial valley: implications for breeding bird conservation. *Journal of Biogeography*, Vol. 26(6):1215-1224.
- UNEP. 2000. Guidelines for integrated management of the watershed - phytotechnology and ecohydrology. Freshwater Mgmt Series #5, Newsletter and Tech. Pubs, UNEP web site. UNEP. www.unep.or.jp/ietc/Publications/Freshwater/FM55. Site accessed September 2, 2003.
- University of Florida. Forest resources: bottomland forest ecosystems. www.sfrc.ufl.edu/Extension/ffws/ffwsec2.htm. Site Accessed October 3, 2003.
- USACE. 1980. Flood tolerant plant species. Engineer Pamphlet 1110-1-3. U.S. Army Corps of Engineers, Washington, DC.
- USDA Forest Service, Research work unit description - Southern Research Station (SRS). www.srs.fs.usda.gov/charleston/projects.html.
- U.S. Fish and Wildlife Service. 1984. Texas bottomland hardwood preservation program final concept plan. Department of the Interior, Albuquerque, NM.
- van der Valk, A.G. 1999. Succession theory and wetland restoration. Pages 657-667 in McComb, A.J., and J.A. Davis, Proceedings of INTECOL's V international wetlands conference. Gleneagles Press, Adelaide, Australia.
- van Der Valk, A.G. 1981. Succession in wetlands: a Gleasonian approach. *Ecology*, Vol. 62:688-696.
- Vaughn, C.C., and C.M. Taylor. 1999. Impoundments and the decline of freshwater mussels: a case study of an extinction gradient. *Conservation Biology*, Vol. 13(4):912.
- Vorosmarty, C.J., and D. Sahagian. 2000. Anthropogenic disturbance of the terrestrial water cycle. *BioScience*, Vol. 50(9):753.
- Wakely, J.S., and T.H. Roberts. 1996. Bird distributions and forest zonation in a bottomland hardwood wetland. *Wetlands*, Vol. 16:296-308.
- Walker, K.F., F. Sheldon, and J.T. Puckridge. 1995. A perspective on dryland river ecosystems. *Regulated Rivers*, Vol. 11:85-104.
- Walters, M.A., R.O. Teskey, and T.M. Hinckley. 1978. Impact of water level changes on woody riparian and wetland communities, vols VII and VIII. FWS/OBS-78/93 and -78/94. Fish and Wildlife Service.
- Walton, R., J.E. Davis, T.H. Martin, and R.S. Chapman. 1996. Hydrology of the Black Swamp wetlands on the Cache River, Arkansas. *Wetlands*, Vol. 16:279-287.
- Ward, J.V., and J.A. Stanford. 1995. Ecological connectivity in alluvial river ecosystems and its disruption by flow regulation. *Regulated Rivers: Research & Management*, Vol. 11:105-119.

- Ward, J.V., and J.A. Stanford. 1983. The intermediate disturbance hypothesis: an explanation for biotic diversity patterns in lotic ecosystems. Pages 347-356 in Fontaine, T.D. and S.M. Bartell (eds), *Dynamic of lotic ecosystems*. Ann Arbor Science Publishers.
- Watershed Science Center. Ontario workshop on riverine science requirements - science brief. www.trentu.ca/wsc/riverine_sci_brief.shtml. Site accessed September 15, 2003.
- Weller, M.W., and D.L. Weller. 2000. Influence of water dynamics and land use on the avifauna of basin wetlands near Riviera in South Texas. *The Texas Journal of Science*, Vol. 52(3):235.
- Wharton, C.H., W.M. Kitchens, E.C. Pendleton, and T.W. Sipe. 1982. The ecology of bottomland hardwood swamps of the Southeast: a community profile. FWS/OBS-81/37. U.S. Fish and Wildlife Service, Biological Services Program, Washington, DC.
- Wharton, C.H., V.W. Lambou, J. Newsom, P.V. Winger, L.L. Gaddy, and R. Mancke. 1981. The fauna of bottomland hardwoods in southeastern United States. Pages 87-160 in Clark, J.R. and J. Benforado, ed., *Wetlands of bottomland hardwood forests*. Elsevier Science Publishing Co., Amsterdam.
- Whitelaw, E., and E. MacMullan. 2002. A framework for estimating the costs and benefits of dam removal. *BioScience*, Vol. 52(8):724.
- Whitlock, A.L. Chapter 20: predicting habitat for wetland-dependent reptiles and amphibians. *Ecology of wetlands and associated systems*. www.pitt.edu/~aap/pas/ecology.pdf.
- Wilde, G.R., and K.G. Ostrand. 1999. Changes in the fish assemblage of an intermittent prairie stream upstream from a Texas impoundment. *The Texas Journal of Science*, Vol. 51(3):203.
- Wilkinson, D.L., K. Schneller-McDonald, and G.T. Auble. 1987. Synopsis of wetland functions and values: bottomland hardwoods with special emphasis on eastern Texas and Oklahoma. Biological Report 87(12). U.S. Fish and Wildlife Service.
- Williams, G.P., and M.G. Wolman. 1984. Downstream effects of dams on alluvial rivers. Professional Paper 1286 pp 1-64. U.S. Geological Survey.
- Wood, P.J., and P.D. Armitage. 1999. Sediment deposition in a small lowland stream - management implications. *Regulated Rivers: Research & Management*, Vol. 15:199-210.
- Wright, J.F., J.H. Blackburn, D.F. Westlake, M.T. Furse, and P.D. Armitage. 1992. Anticipating the consequences of river management for the conservation of macroinvertebrates. Pages 137-149 in P.C.P.J. Boon, G.E. Petts, ed., *River conservation and management*. John Wiley and Sons Ltd., Chichester, UK.
- Yeager, K.M., P.H. Santschi, J.D. Phillips, and B.E. Herbert. 2002. Sources of alluvium in a coastal plain stream based on radionuclide signatures from the ²³⁸U and ²³²Th decay series. *Water Resources Research*, Vol. 38, No. 11.
- Young, P., B. Keeland and R. Sharitz. 1994. Growth response of baldcypress [*Taxodium distichum* (L.) Rich.] to an altered hydrologic regime. *American Midland Naturalist*, Vol. 133:206-212.