

BIOTIC COMMUNITY FUNCTION AND ASSESSMENT MODELS

REFERENCE STANDARD RIVERINE WETLANDS

- ▶ WETLANDS WITH UNALTERED HYDROLOGY
 - PRODUCE CONDITIONS FAVORABLE TO SPECIES ADAPTED TO FLOODING AND SOIL SATURATION
 - PROVIDE A MECHANISM FOR ELEMENTS AND COMPOUNDS TO BE PRODUCED, CYCLED, AND EXPORTED
- ▶ WETLANDS WITH UNDISTURBED, LATE SERAL STAGE PLANT COMMUNITIES
 - HAVE INTRINSIC VALUE
 - PRODUCE CARBON AND OTHER ELEMENTS
 - PROVIDE OPTIMUM WILDLIFE HABITAT
- ▶ WETLANDS CONNECTED TO SUITABLE HABITAT ARE OF HIGHER QUALITY TO WILDLIFE
 - DISPERSAL HABITAT TO PROMOTE GENE FLOW
 - BUFFER AGAINST PREDATORS/PARASITES

BIOTIC COMMUNITY SUPPORT

Definition:

THE CAPACITY OF A RIVERINE WETLAND TO PROVIDE THE PROPER HYDROLOGIC REGIME AND PHYSICAL ENVIRONMENT FOR A CHARACTERISTIC PLANT AND ANIMAL COMMUNITY TO DEVELOP AND BE MAINTAINED.

RATIONAL FOR FUNCTION

- ▶ THE BIOTIC COMMUNITY HAS INTRINSIC VALUE IN THAT SPECIES FOUND IN RIVERINE WETLANDS OFTEN ARE UNIQUE AND NOT FOUND IN OTHER ECOSYSTEMS. THE PLANT COMMUNITY INFLUENCES PRIMARY PRODUCTIVITY AND IS A SOURCE OF NUTRIENTS THAT ARE CYCLED INTERNALLY OR EXPORTED TO THE INSTREAM AND DOWNSTREAM SYSTEMS. FURTHER, IT PROVIDES FOOD AND COVER UPON WHICH THE ANIMAL COMMUNITY DEPENDS. THE ANIMAL COMMUNITY IS RESPONSIBLE FOR SECONDARY PRODUCTIVITY AND ENERGY FLOWS AMONG TROPHIC LEVELS.

IMPACTS TO THE BIOTIC COMMUNITY INFLUENCE:

- ▶ PRIMARY PRODUCTIVITY
- ▶ CARBON AND NUTRIENT CYCLING
- ▶ CARBON AND NUTRIENT EXPORT
- ▶ BIOLOGICAL RICHNESS AND DIVERSITY
 - PATCH LEVEL
 - LANDSCAPE LEVEL

BIOTIC COMMUNITY MODEL

- ▶ VARIABLES
 - *VRIVCON*
 - *VHYDRO*
 - *VCDBH*
 - *VTDEN*
 - *VCOMP*
 - *VTRACT*

THREE COMPONENTS OF BIOTIC COMMUNITY MODEL

- ▶ PROPER HYDROLOGY NECESSARY FOR PLANT COMMUNITY TO DEVELOP AND BE MAINTAINED
 - BOTH *VRIVCON* AND *VHYDRO* VERY IMPORTANT SO COMBINED WITH GEOMETRIC MEAN
- ▶ PLANT COMMUNITY INTRINSICALLY VALUABLE AND PROVIDES HABITAT STRUCTURE FOR ANIMAL COMMUNITY
 - *VCDBH*, *VTDEN*, *VCOMP* ALL IMPORTANT BUT NOT CRITICAL, AND PARTIALLY COMPENSATORY SO AVERAGED

THREE COMPONENTS OF BIOTIC COMMUNITY MODEL

- ▶ LARGE PATCH SIZE AND CONNECTION WITH APPROPRIATE LANDSCAPE NECESSARY FOR MANY SPECIES OF WILDLIFE
 - *VTRACT* ONLY SPATIAL VARIABLE

BIOTIC COMMUNITY MODEL

- ▶ HYDROLOGY AND ONSITE CONDITIONS CONSIDERED MORE IMPORTANT THAN LANDSCAPE AND ARE WEIGHTED MORE HEAVILY
