

MISSISSIPPI ALLUVIAL VALLEY WATERFOWL STEPDOWN STATE SUMMARIES 2015

The Mississippi Alluvial Valley is among the most important regions for waterfowl in North America. Boasting one of the most productive and ecologically rich forested wetland ecosystems on earth, nearly 40% of the Mississippi Flyway's waterfowl and 60% of all U.S. bird species migrate through or winter in what is known as the MAV.

The Lower Mississippi Valley Joint Venture (LMVJV) is one of the first joint ventures formed to support waterfowl populations and achieve the goals of the North American Waterfowl Management Plan (NAWMP). The LMVJV's primary role in waterfowl conservation is provision of non-breeding habitat. Hence, this joint venture's partners have stepped down continental objectives into regional population objectives based on historic bird distributions in mid-winter. Because we assume that non-breeding waterfowl are primarily food limited, the LMVJV uses an energy-based model to translate regional population goals into habitat-based goals measured in "Duck Energy Days" (DEDs).



A Duck Energy Day (DED) is equivalent to the energy needs of an average size duck for one day.

The **2015 MAV Waterfowl Stepdown State Summaries document** sets duck foraging habitat targets, broken down by state, as a means of providing guidance on decisions regarding acquisition, maintenance and/or improvement of management practices to meet habitat objectives in support of the NAWMP.

The MAV consists of portions of six states (AR, KY, LA, MO, MS, and TN), each with a DED goal based on the difference between energy demand (of the target NAWMP waterfowl wintering population) and energy supply (calculated using bioenergetic models that estimate energy per acre of the existing land base). The model indicates that **the MAV is below its NAWMP objective for duck energy days.**

Based on the most recently available satellite imagery and public land data, the bioenergetics model indicates that KY and MO are meeting their goals, whereas AR, LA, MS, and TN are below their goals.

(More detailed information is also available on the **LMVJV Waterfowl Conservation Planning page** at www.lmvjv.org.)



The MAV is North America's most important wintering location for Mallard and Wood Duck.

Access the complete MAV Waterfowl state summaries at www.lmvjv.org/waterfowl-plans



The MAV is responsible for

4.2 million waterfowl

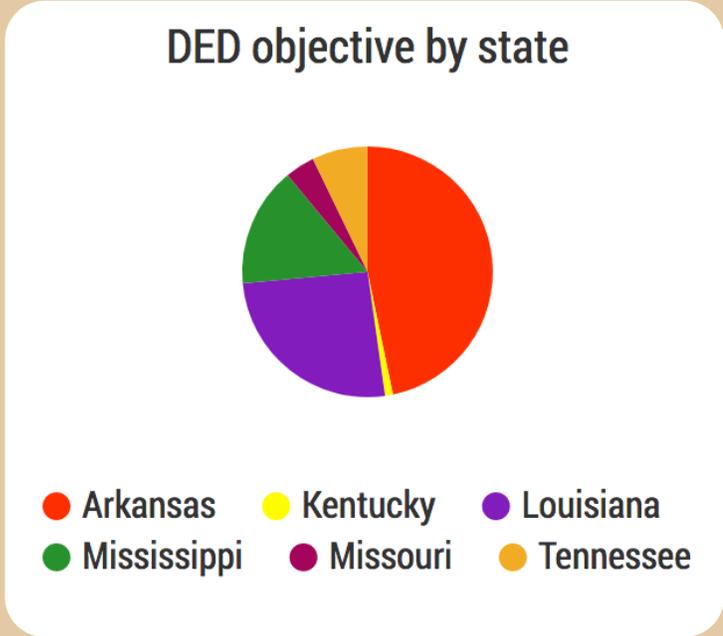
469,336,891 DEDs

8% of the continental population goal for dabbling ducks
33% of the continental population goal for Wood Duck

Assuming a 110-day overwintering period

Overall, the MAV Stepdown Plan emphasizes the need to maintain current waterfowl habitat (Maintenance Goal) within all six states, i.e. it is important that **partners are able to maintain current waterfowl habitat**. In addition, **aspirational goals designed to meet NAWMP population objectives are set for the four states that have not yet met their targets**. Maintenance and aspirational goals by state are shown in the table below. Roughly 143 million DEDs still are needed to achieve the target distribution of NAWMP goals across the entire MAV; the two states exceeding their goals are already contributing an additional 12 million DEDs.

	DED Objective (from NAWMP)	DED estimate (based on model results)	Maintenance Goal DEDs	Aspirational Goal (additional DEDs)
Arkansas	219,427,337	124,200,000	124,200,000	95,200,000
Kentucky	4,708,843	8,300,000	8,300,000	GOAL EXCEEDED
Louisiana	120,913,290	67,500,000	67,500,000	53,400,000
Mississippi	72,637,077	71,000,000	71,000,000	1,700,000
Missouri	18,025,015	27,600,000	27,600,000	GOAL EXCEEDED
Tennessee	33,625,658	27,200,000	27,200,000	6,500,000
MAV Total	469,336,891	325,800,000	325,800,000	143,500,000



Three overarching conservation approaches are identified that could be used to achieve aspirational goals for wintering waterfowl in the MAV:

- acquisition (through easement or fee title) of land to be managed as additional habitat;
- restoration of habitat (re-establishing missing habitats or natural processes) on public or private lands;
- enhancement of habitat through activities that improve food production on public and private lands (e.g. improved site design, management, water control, or crop management practices).

Future Considerations for dealing with uncertainty

- Assess remaining uncertainties in the natural flood component of the model.
- Quantify provision of unharvested crops and moist-soil wetlands on managed private lands (which likely are underrepresented in modeling efforts).
- Reassess the hydrologic performance of public lands based on remote sensing.
- Improve the accuracy of identifying impoundments.
- Update various components of the model.

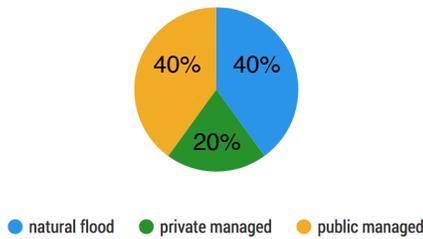
Photos top to bottom: p1. Duck flock Upper Ouachita NWR, Joseph McGowan, USFWS; Mallard by Fyn Kynd; Wood Ducks by Nigel; p2. Bottomland hardwoods-Duane Burdick; p3. Big Lake NWR-Jeremy Bennett; p.4 3 Mallards-Stephen Downes, Hatchie NWR-Rob Colvin, TWRA

State Summaries

Arkansas

Arkansas is responsible for 47% of the Mississippi Alluvial Valley DEDs (219.4 million). Based on a three-year average (2011-12, 2012-13, 2013-14) of estimated energy from natural flooding, private managed lands, and public managed lands, Arkansas supplies 124.2 million DEDs.

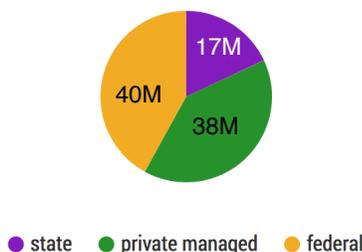
Sources of DEDs in Arkansas



Approximately 80% of energy supply resulting from natural flooding comes from forested wetlands and rice, and 59% of energy supply on private lands is provided through rice and milo. State and federal lands provide habitat primarily through forested wetlands, moist-soil wetlands, and flooded cropland (mostly on NWRs).

Arkansas provides roughly **56% of the state target**. The aspirational goal for Arkansas is provision of an **additional 95.2 million DEDs**, with targets by ownership based on the current distribution of DEDs across the same ownership classes (shown below).

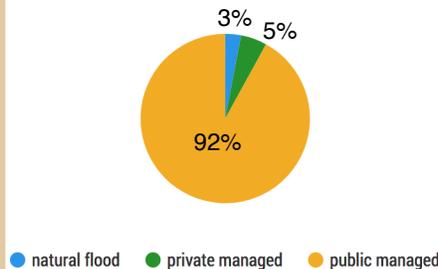
Arkansas aspirational DED targets



Kentucky

Kentucky is responsible for 1% of the Mississippi Alluvial Valley DEDs (4.7 million). Based on a three-year average (2011-12, 2012-13, 2013-14) of estimated energy from natural flooding, private managed lands, and public managed lands, Kentucky supplies 8.3 million DEDs.

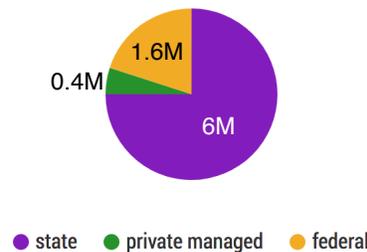
Sources of DEDs in Kentucky



Approximately 93% of energy supply resulting from natural flooding comes from forested wetlands and soybeans, and 79% of energy supply on private lands is provided by the NRCS Wetland Reserve Easements program (WRP/E) plus corn. State and federal lands provide 100% of habitat through cropland (over 80%) and moist soil wetlands.

Kentucky provides roughly **194% of the state target**. Because the MAV as a whole remains below objective, it is imperative that Kentucky **maintain its 8.3 million DEDs** (current distribution by ownership class shown below).

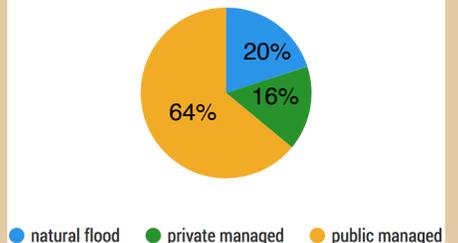
Kentucky maintenance DED targets



Louisiana

Louisiana is responsible for 26% of the Mississippi Alluvial Valley DEDs (120.9 million). Based on a three-year average (2011-12, 2012-13, 2013-14) of estimated energy from natural flooding, private managed lands, and public managed lands, Louisiana supplies 67.5 million DEDs.

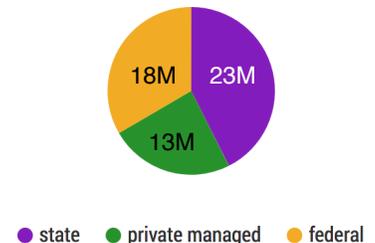
Sources of DEDs in Louisiana



Approximately 82% of energy supply resulting from natural flooding comes from forested wetlands and corn, and 77% of energy supply on private lands is provided by the NRCS Wetland Reserve Easements program (WRP/E), rice, and corn. State lands provide 94% of DEDs via moist-soil wetlands, while federal lands provide 76% via cropland.

Louisiana provides roughly **56% of the state target**. The aspirational goal for Louisiana is an additional 53.4 million DEDs, with targets by ownership based on the current distribution of DEDs in the same ownership classes (shown below).

Louisiana aspirational DEDs targets

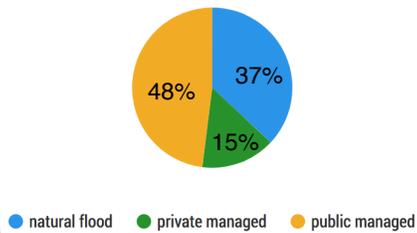


State Summaries

Mississippi

Mississippi is responsible for 15% of the Mississippi Alluvial Valley DEDs (72.6 million). Based on a three-year average (2011-12, 2012-13, 2013-14) of estimated energy from natural flooding, private managed lands, and public managed lands, Mississippi supplies 71 million DEDs.

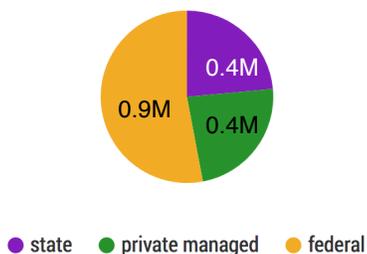
Sources of DEDs in Mississippi



Approximately 80% of energy supply resulting from natural flooding comes from forested wetlands and corn, and 57% of energy supply on private lands is provided through NRCS Wetland Reserve Easements program (WRP/E) and corn. State and federal lands provide habitat primarily through moist-soil wetlands (mostly state) and cropland (mostly NWRs).

Mississippi provides roughly **97% of the state DED target**. The aspirational goal for Mississippi is provision of **an additional 1.7 million DEDs**, with targets by ownership based on the current distribution of DEDs across the same ownership classes (shown below).

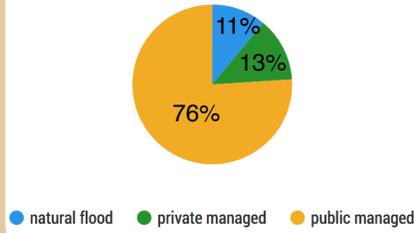
Mississippi aspirational DED targets



Missouri

Missouri is responsible for 4% of the Mississippi Alluvial Valley DEDs (18 million DEDs). Based on a three-year average (2011-12, 2012-13, 2013-14) of estimated energy from natural flooding, private managed lands, and public managed lands, Missouri supplies 27.6 million DEDs.

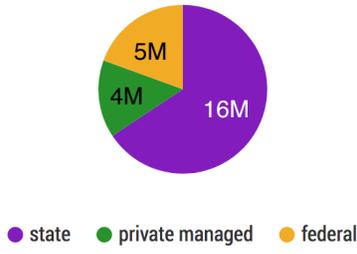
Sources of DEDs in Missouri



Forested wetlands and rice each provide about 30% of energy supply resulting from natural flooding, while the NRCS Wetland Reserve Easements program (WRP/E) and rice each supplied about 30% of energy supply on private lands. State and federal lands provide more than 75% of habitat through cropland and moist soil wetlands.

Missouri provides roughly **153% of the state DED target**. Because the MAV as a whole remains below objective, it is imperative that Missouri **maintain its 27.6 million DEDs** (current distribution by ownership class shown below).

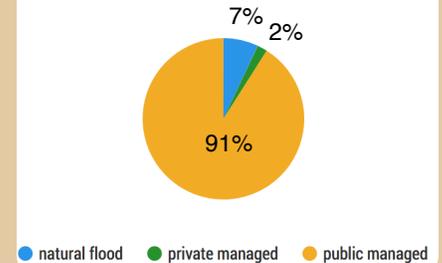
Missouri maintenance DED targets



Tennessee

Tennessee is responsible for 7% of the Mississippi Alluvial Valley DEDs (33.6 million). Based on a three-year average (2011-12, 2012-13, 2013-14) of estimated energy from natural flooding, private managed lands, and public managed lands, TN supplies 27.2 million DEDs.

Sources of DEDs in Tennessee



Approximately 79% of energy supply resulting from natural flooding comes from forested wetlands and corn, and 75% of energy supply on private lands is provided by the NRCS Wetland Reserve Easements program (WRP/E) plus corn. The majority of DEDs from state and federal lands (95% and 85%, respectively) are provided by cropland.

Tennessee provides roughly **80% of the state DED target**. The aspirational goal for Tennessee is provision of **an additional 6.5 million DEDs**.

