FY2023 Natural Resources Annual Report

MISSION STATEMENT

Strengthen our Warfighter and surrounding community by building a healthy, native urban ecosystem.

VISION

- Balanced development of the built and natural environment is the hallmark of the program ensuring a quality environment which fully supports and sustains military readiness.
- Natural resources-related outdoor recreation opportunities are unmatched for an industrial military installation and contribute positively to the health and wellness of the workforce.
- Local community has taken pride and ownership in their surrounding natural environment.
- Program identity and public trust are high.
- Effective and efficient program operation.
- Customer satisfaction is high.

Agriculture

- **Hay lease expands by 27%, saving over $14K annually in reduced mowing costs:** In the fifth year of the lease, haying acreage was increased from 133 to 183 acres. Over 480 round bales were harvested on three landfills, around Building 9001, the Navy, Cyber Engineering Installation Group, and other areas.

Natural Area Restoration/Preservation

- **Team Tinker-AFCEC trailblaze urban prescribed burning in Oklahoma and region:** Burned over two-hundred grassland and woodland acres at over 75 sites. Burning promoted regulatory compliance by reducing invasive and other harmful weeds. It also rejuvenated native plant community vigor, upgraded fish and wildlife habitat, and improved water quality through erosion control and better pollutant filtration. Moreover, it improved natural aesthetics and reduced hazardous vegetative fuel loads which lower catastrophic wildfire potential. Also, 8,000 cubic yards of storm tree debris were diverted from landfills by burning at an on-base staging area, saving tens of thousands of AF dollars.

- **Hazardous fuels reduction grant to bolster mission resilience on wildland urban interface:** Initiated collaboration with the Oklahoma City Fire Department and Oklahoma Department of Agriculture (ODA) which led to the ODA submitting and being awarded a $300K U.S. Forest

Service grant to mitigate hazardous vegetation fuels on 425 acres adjacent to the base. This preemptive action is expected to avert potential negative catastrophic wildfire-related impacts to the Tinker mission in the future.

- **Vegetation conversion is transforming golf course image and lowering maintenance costs:** Continued implementation of vegetation management strategy to eradicate invasive species and restore a healthy, more aesthetically appealing prairie setting on 26 acres of out-of-play areas on the base golf course. This project merges Air Force conservation mandates with golf course vegetation maintenance reduction goals.

- **Urban Native Prairie Restoration Workshop promotes improving urban environmental health:** Hosted one-day, on-base workshop to share proven prairie establishment techniques and encourage prairie restoration in urban areas. Over 30 attendees were represented by the City of OKC; City of Norman; USDA Natural Resources Conservation Service; Oklahoma State University; American Society of Landscape Architects (Oklahoma Chapter); Oklahoma City Community Foundation; Cheyenne and Arapahoe Tribes; and others.

- **Cedar mastication safeguards against military mission interruption & sensitive species decline:** The Joint Base San Antonio (JBSA) Wildland Support Module (WSM) masticated hundreds of cedars on 14 acres of native prairie grassland. The effort reversed the upward trend of species of conservation concern habitat loss and hazardous fuels buildup which could lead to mission-impacting catastrophic wildfires in the future.

Urban Forestry

- **31st consecutive Tree City USA award underscores urban forestry program stamina:** This National Arbor Day Foundation event and recognition symbolize Tinker's perennial pledge to better its urban forest and upgrade trees' ecological service outputs such as improved air quality, reduced urban heating, and enhanced water quality for the betterment of the base and its community. This year, nine trees were planted by Diversified Construction of Oklahoma (DCO) to include the ceremonial tree and reading of the Arbor Day. DCO, 76 MXSG, Tinker Corps of Engineers, and CE participated.

Fish and Wildlife Conservation

- **Agreement and permit provide responsible wildlife stewardship in executing military mission:** Implemented cooperative agreement and work plan with United States Department of Agriculture (USDA) Wildlife Services for wildlife damage management and secured US Fish & Wildlife Service permit for migratory bird depredation. This promotes responsible integrated wildlife damage management, reduces bird/wildlife aircraft strike hazards (BASH), and ensures responsive 24-7 wildlife conflict mitigation to support Air Force flying mission.

- **Texas horned lizard research advances head-start/translocation/health of species of concern:** Through a research partnership between Tinker's natural resources program, University of Oklahoma, and the Oklahoma City Zoo, annual lizard tracking continued along with translocation and head-start research. Survival rates were determined indicating head-start rates were only beneficial the first three months post release. Health monitoring of lizards included pathogen/

parasite screening and gut biome comparisons of head-started individuals and resident lizards. Study gave Tinker lizard population a clean bill of health.

- **University of Oklahoma finds new fish species occurrence and upward-trending biodiversity:** Final research report was delivered revisiting stream surveys of the 1980's, 1990's, and 2009 in the Crutcho Creek Drainage Basin. The current survey discovered a new species (Spotted bass) not previously documented on base, and biodiversity was found to be trending upward. Fish assemblages and stream dynamics in the basin were good and resembled other low gradient streams in Oklahoma. Results are being used to make recommendations for future management of the stream systems and contribute to a novel model of "loose equilibrium" for stream fish community dynamics, being published by University of Oklahoma fish ecologists.

- **Winter trout stocking program provides trophy fishing opportunities for Airmen**: In its 19th year, over 800 rainbow trout, including 20 trophy trout, were stocked in base ponds at the lowest possible cost by self-hauling and stocking. This provided Airmen with low-cost, close-to-home fishing for once-in-a-lifetime catches.

- **2023 fish permit sales off the charts:** Sport fishing permit sales jumped 25% setting an all-time record high as angler permit and creel checks increased awareness of permitting requirements, and trophy catches lured anglers to fishing Tinker's ponds.

- **Fall fish population surveys aid in improving pond sport fisheries:** Survey results and recommendations:
    - Beaver Pond—managed for large bluegill for kids' fishing program
        - Status: balanced population with bass recruitment and good forage
        - Recommendation: continue stocking of hybrid bluegill and supplemental forage
    - Beaver Marsh Filter—managed for trophy bass and bluegill
        - Status: balanced population with bass recruitment and great forage
        - Recommendation: continue supplemental forage; note several large bass weighing 3-5 pounds caught hook-and-line
    - Redbud Pond—managed for bass and bluegill
        - Status: unbalanced population; no bass reproduction; forage good
        - Recommendation: provide supplemental forage to offset indication of heavy bluegill predation; monitor for bass reproduction next year
    - Prairie Pond—managed for bass and bluegill
        - Status: balanced with bass recruitment; overgrowth of spatterdock has eliminated cover for small bluegill fry resulting in heavy predation
        - Recommendation: spatterdock control
    - Primrose Pond—managed for bass
        - Status: unbalanced population with no bass recruitment; adult bass were observed; forage at good levels
        - Recommendation: continue to monitor if bass stocking is required

- **Allowing nature to work—angler access improves:** Beaver activity around water drawdown structure at the Beaver Marsh Filter has resulted in a beaver-created earthen berm around the structure allowing better angler access to the middle of the pond. The Beaver activity also

improved flow regulation of the leaking drawdown structure. Plan is to continue monitoring, but no repairs or actions are anticipated.

Community Engagement

- **Communication sustains program consistency, continuity, and momentum:** Executed presentations and individualized orientation tours to foster understanding of the necessity of environmental sustainability to support the Air Force mission. These included: 72 MSG/CD & marketing staff; 75 Employee Enhancement Program participants; Dyess AFB natural resources manager; and Forest Health Committee members at the 13-state regional forester's meeting in Oklahoma City.

- **Manuscript collaboration advances reptile and amphibian science:** Several manuscripts and conference proceedings were published and edited related to Tinker's research on Texas horned lizards:
  - Eliades, S.J., R.W. Moody, B. Lock, L.P. Barrett, R.J. Snyder, K.M. Stroh, J.L. Watters, K.A. Marske, H.C. Lanier, and C.D. Siler. *In review*. Gut microbiota shifts from headstart to release of the locally imperiled Texas horned lizard (*Phrynosoma cornutum*). *Zoo Biology*.
  - Eliades, S.J. 2023. Texas horned lizard student in Oklahoma. 2021 Grant Recipient Summary. *Phrynosomatics* 28(4): 1, 3–5.
  - Nielsen, F. November 4, 2023. Survivorship and spatial use of headstarted Texas Horned Lizards soft-released as adults into an urban population. KHS 2023 Conference, Lawrence, KS. [oral presentation]