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THE USE OF FIXED WING AIRCRAFT IN PREDATOR CONTROL

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Abstract: Aerial hunting was first used in a professional predator control program in 1942. The most popular aircraft used by animal damage control agencies is the Piper PA-18. Proper training of flight crews is of utmost importance for a successful aerie(operation. Fixed wing hunting is restricted to relatively open areas and flat terrain. Aerial hunting is an excellent control method where livestock losses are severe and immediate control is needed

Introduction

Fixed wing aircraft for use in predator control dates back to the mid 1920'x. After World War II, heating by air was a common practice due to the number of pilots and aircraft available. Added incentives were good fur value and state bounty payments

Aerial hunting was first used as a tool is a professional control program is 1942 in North Dakota. It was adopted in 1949 as an operational tool in South Dakota. Since that time it has spread to almost all of the western states.

Since 1972, the President's Executive Order #11643 banning the use of toxicants has increased the importance of aircraft as a professional control method. After 1972 an accelerated program was initiated to offset the loss of toxicants. However, limited funding and very few skilled aerial crews were available. Also, state laws such as those in Arizona prohibited aerial hunting altogether. Aerial heating is less effective is dense cover and rugged terrain. Thus, the accelerated program was hampered by these factors.

Fixed wing aircraft are effective for shooting target animals from the air as well as locating dens in the spring or early summer. Fixed wing aircraft can be used successfully for elimination of depredating animals is sheep and goat pastures, or for reducing the local population on cattle ranges.

Aircraft

Current regulations state that aircraft used shall have the following features: a high wing, 2 place, tandem seating, conventional landing gear, sad a single engine. The Piper PA-18 Super Cub is the most common choice by pilots and Animal Damage Control agencies for aerial hunting. The current models have either a 150 hp or 160 hp engine. The 160 hp is becoming the most popular due to its added power, the unavailability of 80 octane fuel for the 150 hp, and the fact that the 160 hp actually burns less fuel per hour.

The PA-18 is capable of flying at low speeds, maintaining good maneuvering ability sad control response, due to its excellent power-to-weight ratio. The PA-18 is equipped with a rugged landing gear and oversize tires used for repeated landings in rough terrain. The oversize tires also allow adequate propeller ground clearance for the special propeller now being used. This propeller, called the "Alaskan Super Prop", provides excellent short field take-off capability and allows the engine to develop maximum power at low speeds.

Current models of *the PA-18* can also be modified with the droop tip. This modification actually adds 4 more feet of usable wing and redirects the airflow in the wing tip area. Aircraft with this modification can safely fly more slowly than aircraft without it

?he PA-18 can be modified to provide a shooting window for the gunner. This window normally swings open out of the way and allows adequate shooting room without the danger of hitting say parts of the aircraft

The PA-18 has good visibility and an overhead skylight which is essential for successful ADC operations. The seats are modified and raised to a position so the pilot can look out of the skylight and keep track of target animals while turning. The rear seat is also raised to provide the gunner a proper angle of fire.

The automatic nagger has become a standard item on aircraft used for aerial hunting. The flags are made of brightly colored paper about 16 feet in length. They are dropped from the aircraft by pressing a button on the pilot's control stick. The flags can easily be seen by both flight and ground crews and are used to mark den sites or coyotes after they are shot

Flying Operations

The pilot and gunner must work as a team with full confidence in the other's judgement and ability. This confidence can be gained only by working together and learning from each other on a daily basis. Low level flying operations leave little room for error and a mistake made by either tire pilot or gunner can result in an accident In recent years, the USFWS has adopted a safety training program for both pilots and gunners involved in low level flying operations. Even with adequate training requirements, there are no substitutes for the personal qualities of experience, maturity, judgement and knowledge of aircraft and personal limitations. No pilots or gunners are required to fly with an individual whose judgement or tempermeat are questionable.

Aerial hunting involves maximum low level maneuvering to bring the aircraft within effective shooting range of the target animal. This maneuvering at slow speed should provide the gunner a stable platform as well as enough time to do the shooting. Hunting should be done only when weather conditions are favorable. These include calm air and good sunlight The pilot should plan his approach to the animal with safety in mind He should be cognisant of wind directions, terrain, and obstructions. Particular attention should be paid to power lines as they present a great hazard and can easily be overlooked. Passes should never be made directly into the sun as visibility is limited and obstructions on the ground may not be seen.

Aerial hunting is done at varying distances from the ground depending on weather conditions and the type of vegetation. Generally 200 to 300 feet is used while searching for the target animal

Coyotes are readily observed on bright, clear days, particularly in the early morning and late afternoon hours. A , bright green background is as good as a good snow cover for observing animals. Early morning hours are best for aerial hunting for several reasons. First, coyotes make more kills during this period than any other time. They are more active because of the cooler temperature. Light conditions are best when the sun is at a low angle allowing coyotes to show up better by creating a contrast to the surrounding vegetation. Also the flight crew is not working against time and loss of light as during evening hours.

When the target animal is found, the pilot must maneuver the plane into a position that will allow the gunner to safely shoot the animal. This position, tailed "a pass", is made into the wind if possible and as slowly as possible with regard to safety. This speed should be about 55 to 60 mph. All passes should be standard each time to allow the gunner the best opportunity to shoot the animal, and all passes should be considered a possible landing, as any misjudgement or incident during a pass would result is a leading. As soon as enough altitude is regained after the pass, the pilot should bank the aircraft and use the skylight to keep track of the animal for another pass if needed. The flags dropped near the coyote are a great help is keeping track of the animal because once the coyote is down it may blend into the vegetation and be very hard to see.

Support from Ground Crews

Every coyote reacts differently to the approaching aircraft Some coyotes may be running when spotted and others may be laying down and not get up. After a coyote has been chased or shot by an aircraft; they become plane-shy and will make every effort to escape into heavy brush, deep draws or other cover. Mishandling of coyotes by inexperienced flight crews may cause many hours of extra labor, particularly if then animals kill livestock on a regular basis. Every effort should be made to kill a coyote once aerial hunting action has begun. The ground crew with trained dogs are a valuable asset to locate a wounded coyote. The ground crew also help the aerial crew by initially locating the coyote. Coyotes frequently can be induced to respond to either high pitched sirens or simulated coyote howls, thus revealing their location. Once the coyote reveals his position, the ground crew directs the aerial crew to the location. The search can then be concentrated in a relatively small area with greater chances of success. The ground crew should be equipped with 2 radios. One should be permanently mounted in the vehicle, and the other should be a portable walkie-talkie type.

Denning

Aerial hunting is also a good method for removing depredating coyote during denning season. Den hunting is done during normal aerial hunting sessions by looking for animal sigh as well as the animal itself. Den sign includes cleaned out holes, the den itself, and worn vegetation around the den. An aircraft flying over the den will generally not disturb the adults enough to cause them to move the pups. Adult coyotes can also be followed as they return to the den. Once the den is found, every effort should be made to kill the adults before the den is taken. Removal of the male will more likely reduce livestock loss as the male does more killing. The female may be easier to take later at the den site because of the stronger bond with the pups. If the den is found, but the adults are not found during that particular hunting session, systematic searches should lx made on following days, particularly around the den sits. Chances of success are greater because the area of search is reduced considerably. The old saying, "We now have their address", is very true as it is usually only a matter of time until the adults are found at the den.

Conclusion

When it can be employed, aerial hunting of depredating animals is unsurpassed as as immediate control method where livestock losses are severe. It can be hampered by adverse terrain or inclement weather, therefore it must be considered as a supplement to other methods used in animal damage control programs.

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