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An Automated Box Trap Monitoring System for Quail Hunting Properties

Over the past several years the role of predator control has been brought to the forefront of quail management. Recent research at Tall Timbers Research Station (TTRS) and the Albany Area Quail Project (AQP) has conclusively demonstrated the positive population impacts of integrating an aggressive mammalian nest predator control plan into an overall quail management program. Predator control forms one of the three principal legs of the quail management triangle. The other two legs of the triangle are effective supplemental feeding and development and maintenance of a diverse and productive understory vegetation.

TTRS and AQP have worked cooperatively on a multi-year predator control study that uses a classic “cross-over” design. Two pairs of large acreage tracts were selected in both the Thomasville and Albany area. During the first 3 years of the study only one site at each location was intensively trapped while the other site was not trapped. After the initial 3-year period, the treatment (predator control) was “crossed over” to the other paired property and the initial trapping area was not trapped. While the completed data from this project is still being analyzed, the preliminary findings show dramatic differences in all measured reproductive parameters such as higher nesting success and more chicks produced per hen on the trapped sites. When treatments were reversed, predators quickly re-colonized the previously trapped areas and substantially reduced reproductive output and fall population levels. Conversely, the newly trapped sites responded in a predictable manner by having higher reproductive output. What was remarkable is how quickly predators moved into the previously trapped areas and how effective they were at reducing the overall quail population. Quail managers have responded to this information by initiating aggressive trapping programs using large numbers of box, or live, traps. The key to the success of these box trap programs is that large numbers of traps are utilized on a permanent or semi-permanent basis, thereby providing an aggressive and consistent predator deterrent. Traps are commonly placed at a density of one trap for every 15-30 acres of habitat. Capture rates vary from plantation to plantation and throughout the year. On well-managed properties capture rates average about 1-5% daily (1-5 captures per 100 trap nights). The main drawback to this type of a trapping program is the large labor, fuel and equipment costs necessary to “run” several hundred traps on a daily basis.

American Wildlife Enterprises (AWE) has developed a telemetry-based system that remotely monitors individual box traps with daily information on trap status. This manager to check the status of 100 traps in 800 traps can be monitored by this system. 3,000-acre plantation with 100-200 box simply listen for 5-10 minutes while having decide which 2-10 traps he needs to visit. system is a powerful radio transmitter that allocated to each individual trap. Upon closure of the trap door, the transmitter sends a uniquely identified radio signal to a centrally located scanning receiver indicating that the



and provides the manager system will allow a just 5 minutes. Up to Therefore, on a classic traps, the manager can his morning coffee to The “heart” of this has a unique frequency

has a unique frequency allocated to each individual trap. Upon closure of the trap door, the transmitter sends a uniquely identified radio signal to a centrally located scanning receiver indicating that the

trap has been closed. The base receiver and antenna are normally set up at the plantation office; however, the system has tremendous flexibility and can be used in remote and non-permanent locations. An LED has been included on the transmitter that blinks once the trap door has been closed. The LED will turn off once the trap door has been opened, therefore allowing the trapper to know that the system has been properly re-set. One important benefit of this system is that it allows for placement of traps along principal predator movement corridors as opposed to a standard trapping system that uses primary and secondary roads for speed and efficiency of trap checking. When using a box trap monitoring system (TMS), traps are only visited when they have been closed or during re-baiting. Therefore, traps can be located in remote areas of the property. A good quality aerial photograph or map is all that is required for establishment of this system.

The key to making a TMS cost-effective is to develop a series of baits that will last approximately one month. A considerable amount of experimentation has been done over the past year by experienced local trappers to develop long-lasting and effective baits. While chicken eggs are fairly effective, we have also had good success with a modified “cray fish” bait or plastic eggs filled with a “stink” bait or lure, which should last approximately 3-4 weeks. The improved effectiveness of these types of baits means traps only need to be visited once monthly. We are beginning to understand the efficiencies of baits over time; however, more experimentation is needed. Future research should help to develop more effective and longer lasting trap baits.

While the “start up” cost for this type of system is fairly high; the savings in labor, fuel and vehicle maintenance should allow for full recovery of initial expenditures within 1.5-2 years. If the system is capitalized over a 10-year period, than trap checking can be considered free for 10 months of every year. A TMS unit located 4 miles from the office at Rosemary Plantation transmitted continuously for 14 months. Fourteen months of continuous broadcasting equates to about 40 years of operation at a 2.5% capture rate. This system is currently used on properties in Florida, Georgia, Alabama, South Carolina, North Carolina and South Dakota. Managers on these sites have determined that a 1.5-year “break even” time for full recovery of cost is very realistic. Transmitters should last for many years and have been designed to be completely waterproof. Inundation for periods up to 30 days has no impact on the transmitter. With proper care the monitoring system should provide years of quality service. Only a minimal amount of training is required to operate this simple system. For further information on the feasibility of this system for your property please contact Brad Mueller at (850)-997-3551.

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TMS TESTIMONIALS

Mount Pleasant Plantation

This is our third year using the TMS system on Mt Pleasant. I can say without a doubt that we would not be enjoying our quail management success without it. Mount Pleasant is an island of quail habitat and has three miles of boundary along a river swamp. For the last three years we have seen our predator index steadily decline with this year being the absolute best (2%).

Prior to using the TMS system, we had one of our four employees doing nothing but checking 100 traps on a daily basis. He was covering a 25-mile circuit (9,000 miles annually), which took him 8 1/2 hours a day (3,100 man hours annually). If he had to rework the traps, bait or remove animals, he could not keep up on a daily basis. Now that we are using the TMS system, my trapper can check 100 traps before we make a pot of coffee in the morning and only spends about 30 minute "running" the traps.

When we add up the man-hours, vehicle fuel, maintenance, and all the other costs associated with our old style of trapping, we recovered the total cost of the system within 16 months of purchase. While this seems very efficient, imagine what the return on the investment will be in 5 or 10 years. The bottom line is that I have effectively added an employee by using the TMS program.

Nat Ruth
Manager, Mount Pleasant Plantation
843-833-5198

Dee Dot Timberlands

We have been running 100 traps with the TMS system for approximately 2 years and have been very pleased with the cost savings benefit of this system. Our traps are spread over 5000+ acres and the TMS system saves us a lot of man-hours. For one man to run our entire trap line would take 6-8 hours each day. With the TMS system it takes only minutes to scan all the traps. We travel only to the traps that have been tripped, thus saving a tremendous amount of time.

Not all of our traps are along the roadside, so the time saved in not having to walk to traps is substantial. The TMS system has improved our trapping results exponentially and I would recommend it to anyone serious about reducing their predator population.

Keith Kelley
General Manager
Dee Dot Timberlands
904-591-9695

Rosemary Plantation

We are happy to report that TMS has helped Rosemary, LLC eliminate the vast majority of our varmint predators. As important, the radio telemetry system has reduced our committed labor costs by more than 2/3rds and our capital costs by almost half when compared to our prior trapping efforts. In addition to greatly improving our productivity, the TMS approach also insures that we remove trapped animals in a most timely manner.

We cannot recommend Brad Mueller and TMS more strongly for those interested in a comprehensive and effective program for controlling varmints. I will be happy to talk to potential users of your services. They can contact me at 901-761-2474.

Mason Hawkins
Managing Member
Rosemary, LLC

We run 400 box traps on a year-round basis and consider the predator control program to be an integral part of our quail management success. Five years ago we started with a 74% visitation rate on our predator survey and virtually no quail. After 5 intensive years of understory management, feeding and aggressive trapping we have dropped our visitation rate to around 10% and have increased our wild quail population to around 1.5 birds per acre. We have been using the TMS for 3 years and completely paid for the system within 1.5 years of implementation. Rosemary has over 90 miles of rough trap lines and it would be physically impossible to “run” the entire line on a daily basis. The use of the TMS system allows us to effectively have one more employee that can be used for management activities as opposed to checking 400 traps on a daily basis to capture 4-8 animals.

Brad has been a pleasure to work with and has provided excellent service whenever we needed it. I am amazed that the system has not caught on faster in the plantation community. Once people see the tremendous cost savings of the program I believe it will be implemented wherever an aggressive, consistent trapping program is needed. I strongly recommend the TMS and would be delighted to talk with anyone concerning the merits of this program.

Tim Miles
Manager, Rosemary Plantation
229-672-0715

Flint River Plantation

We began using the trap monitoring system about two years ago and according to our break-even analysis, it has already paid for itself. It simply takes less labor and vehicle cost to drive directly to two or three traps versus running the entire route of 115. There is also the opportunity cost of freeing up an extra worker and equipment to accomplish other projects. Another critical benefit is the freedom to place traps deep in the predator travel corridors. Before we had the TMS we placed our traps along the smooth well

traveled roads where we could zip by and visually check traps on the fly. Now that the traps are in the travel corridors, our trap line has become much more efficient.

We were simply amazed at the range of the scanner. To say our property has a high degree of topographical relief is an understatement. Yet the scanner picks up tripped traps at the lowest point on the plantation, which is over four miles away.

We have been very pleased with American Wildlife Enterprises and the degree of service and support they give their clients. Brad Mueller is a renowned quail biologist who is not the least bit shy about pointing out how you can improve your quail habitat. Thanks to his advice and our Trap Monitoring System, our bird population has grown by seven fold in three short years. We could not be more pleased.

Stan Lumsden
Owner, Flint River Plantation
404-354-1475

Tamathli Plantation

Tamathli Plantation has been using the TMS system since the first of the year (2009). I am convinced that by reducing operating costs we will pay for the complete system in less than two years. We have doubled the number of traps we run and still spend substantially less time "checking" the traps each day. The system is working well and we have made the trapping changes - improvements you have suggested. We are using plastic eggs with holes drilled in the ends, filled with cotton balls that we have put drops of trapping "stinkem" on. In each trap the eggs are placed on a piece of 2 x 4 (with a hole drilled in one side so the egg will stay in place) thus providing critters with a better view of the egg. Because of our more efficient trapping we are continuing to catch animals at the same rate we were achieving when we had one-half as many traps. The entire system including transmitters and receiver is working well. I would be happy to show our system to anyone interested.

Mac McGriff
Owner, Tamathli Plantation
229-263-8473

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Pricing for Trap Monitoring System (TMS)

100 TMS Units

Transmitters:

1. 100 long-range transmitters encased in waterproof cases with either standard or long-range antennas.
2. All needed hardware to attach transmitters and actuators to traps.

TOTAL: **\$25,000.00**

Additional transmitters, above 100, can be purchased for \$235.00/unit

Receiver, Antenna, System Set Up and Design:

1. An initial visit will be scheduled by AWE to evaluate the feasibility of the TMS for your property and to review antenna selection and placement.
2. One, 4- MHz scanning receiver with battery charger and AC adapter, receiving antenna(s) and all poles and needed hardware to install antenna. AWE will cover cost of professional antenna installation and lightning protection for the receiver and antenna pole.
3. AWE will deliver transmitters and will provide necessary training to set up and run the system.

4. **TOTAL:** **\$9,000.00**

Total for Complete, Installed 100 unit System:	\$34,000.00
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A 50% down payment will be due at project initiation with the balance paid upon delivery of transmitters.

Total price does not include cost of traps. (Traps range from \$75.00-\$100.00/unit)

All materials and workmanship will be guaranteed for 1 year from date of delivery. Any foreign substances sprayed on the transmitter will void the warranty.

