

Idaho Department of Fish and Game
Commission Briefing
2010-2012 Remote Game Bird Rearing Units Evaluation
November 2012

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First Year Evaluation (2011)

In March 2010, the Idaho Department of Fish and Game (Department), in cooperation with several sportsmen's groups and landowners, evaluated the effectiveness of remote game bird rearing units (hereafter, referred to as units). These units are sometimes referred to by the trademark term Surrogator®.

The evaluation investigated the ability of remote rearing units to improve the seasonal harvest rate of rooster pheasants, as well as to compare the cost of bird-in-bag to the estimated cost of the Department's current Wildlife Management Area (WMA) adult pheasant stocking program.

Another objective was to determine if working with private landowners on this effort would increase their interest in habitat projects or additional areas opened for sportsmen access.

Six units were placed on both public and private lands in three Department regions:

Magic Valley (reg. 4)	1 unit on Niagara Springs WMA	1 unit on private property
Southeast (reg. 5)	1 unit on Sterling WMA	2 units on private property
Upper Snake (reg. 6)	1 unit on Market Lake WMA	

Each unit received two separate batches of 200 day-old rooster pheasant chicks (2,400 chicks total). Each chick was marked by Department staff with a colored elastimer marker injection in each wing. The elastimer is visible under black light and allowed evaluators to determine "unit-raised birds" from either wild-born birds or pen-raised adult birds also harvested on the area.

Chicks were raised according to the recommendations of the manufacturer of the Surrogator® as well as in consultation with sportsmen's groups. Each batch of chicks was released to the wild at the manufacturer's recommended age of four weeks.

The Department placed wing collection barrels at or near all release sites and provided public outreach to maximize wing collection. Hunters were asked to submit either both wings in an envelope and drop the envelope into the wing barrel. Each envelop had the hunters name, date and location of the pheasant harvested. The Department entered the names of each hunter who submitted a wing envelope into a random drawing for one of three \$100 gift certificates to ensure

the highest return rate for the evaluation as possible. Department staff also requested cooperating sportsmen's groups inform the public about the evaluation.

Department Cost

One objective was to determine the "best-case scenario" cost, to the Department, to implement this type of program. The final financial contribution by the Department was used to calculate the cost of a harvested bird as follows:

Materials (chicks, feed, propane, hardware) \$6,076

Personnel Hours*

Region 4	172 hours	\$2,811
Region 5	339 hours	\$5,540
Region 6	191 hours	<u>\$3,121</u>
Total		\$11,472

*An hourly rate of \$16.34 was used; this is comparable to an entry level technician with benefits.
Note: Volunteer hours are not calculated into this cost.

Estimated Mileage*

Region 4	1,000 miles	(estimated)
Region 5	1,000 miles	(estimated)
Region 6	<u>1,920 miles</u>	(actual)
Total cost	\$1,784	

*State mileage rate was \$0.455 per mile.

Total cost of rearing effort in year one used in calculations: \$19,332

There was no cost for the actual rearing units, because these were borrowed from sportsmen's groups. Each unit would retail for \$2,000-\$2,500.

Pre-release Mortality Factors

We estimated 250 chicks died prior to being released from the rearing units. Most units showed less than 10% mortality other than one batch in a unit in Region 4 that had 64% mortality (129 chicks out of 200). Most of the mortalities were necropsied at the Department wildlife health lab and were determined to have died of bacterial or fungal pneumonia. Nearly all studies conducted in other states, experienced at least one large mortality.

Pheasant Harvest Returns

The Department examined all wings returned to wing collection barrels for elastimer markings after the end of the 2010-11 pheasant hunting season. Of 1,038 pheasant wings submitted by the public, 214 were marked.

Cost of Harvest of Remote Gamebird Rearing Units “Bird-in-Bag”

As stated previously, it cost the Department \$19,332 to raise 2,400 chicks for release. Of the 2150 pheasants released, 214 marked adult rooster pheasants were submitted as hunter-harvested.

We calculated the cost per bird had all 2,400 chicks survived to maturity and had hunters harvested 100% of those birds. The cost would be \$8.06 per bird in the bag (\$19,332 divided by 2,400).

Comparison to Adult WMA Program

Program Title	Purchase Cost/bird	% return to bag	Cost of each harvested bird
WMA adult program (2009)*	\$13.85 ea.	70%	\$19.76

*WMA results are an average for the entire state (11 WMA release sites); prices per bird and percent harvest rates vary among WMAs.

True Cost of Evaluation

The Department tracked the cost of all time and materials that went into this first year evaluation, at actual salary rates. The Department spent nearly \$34,000 in personnel time and material to conduct the evaluation in 2011.

Sportsmen’s Effort

A coordination event was held with landowners and members of sportsmen’s groups to discuss the outcome of their independent efforts using rearing units. The groups stated that they have 41 units placed around the state and raised and released nearly 20,000 chicks of a variety of upland game bird species (gray partridge, chukar, pheasants).

They had no formal evaluation or marking process in place, but felt that they had good survival of released birds. The landowners and sportsmen also relayed lessons they learned while using these units to Department staff.

Recommendations for Second Year

1. Reduce effort to just the three WMAs.
2. Modify marking technique to reduce expenses.
3. Request additional assistance from volunteers in managing the units.

4. Request sportsmen groups track any requests for habitat improvement projects.

Second Year Evaluation (2011-12)

Background

In March 2011, a second year of the evaluation was conducted. The Department used four units placed on WMAs in three Department regions.

Magic Valley (Reg. 4)	1 unit on Niagara Springs WMA
Southeast (Reg. 5)	2 units on Sterling WMA
Upper Snake (Reg. 6)	1 unit on Market Lake WMA

Two separate batches of about 200 day-old rooster pheasant chicks were placed in each unit (1,660 chicks total). During 2012, a different chick-marking technique was used to reduce expenses. Prior to purchase, the game farm clipped a toe on each foot of each chick. A different toe was selected for each batch so that survival could be determined for each release period.

Chicks were raised according to the recommendations of the manufacturer of the Surrogator® as well as in consultation with sportsmen's groups. Each batch of chicks was released to the wild at the manufacturer's recommended age of four weeks.

The Department placed wing collection barrels at or near all release sites and provided public outreach to maximize wing collection. This year hunters were asked to submit both feet in an envelope and drop the envelope into the barrel. Each envelop had the hunters name, date and location of the pheasant harvested. The Department entered the names of each hunter who submitted a wing envelope into a random drawing for one of two \$50 gift certificates, to ensure the highest return rate for the evaluation as possible. Department staff also requested cooperating sportsmen's groups inform the public about the evaluation. Because all the chicks died at Market Lake WMA before release, it was only necessary to place wing barrels at the other two WMAs as well as only offer two gift certificates.

Pre-release

We estimate 828 chicks died prior to being released from the rearing units. This was nearly 50% mortality prior to release. There were three incidents of equipment failure (heating units). This resulted in a total loss of chicks at Market Lake WMA and significant mortality in one batch at Niagara Springs WMA. Most other units showed low mortality (<10%).

Because so many birds were lost to bacterial or fungal pneumonia in 2010, Department staff increased their focus on keeping the units clean. As a result, there were very few chicks lost to disease in the second year. Representative samples of the dead chicks were necropsied at the Department Wildlife Health Lab and were determined to have died from hypothermia due to the heating unit failures.

During the end-of-season coordination meeting, the sportsmen's groups identified that they had also experienced large mortality events (usually failed heaters).

Pheasant Harvest Returns

The Department checked all feet returned for toe clipping after the end of the 2012 pheasant hunting season. Of 917 pairs of pheasant feet submitted by the public, 22 had clipped toes. The staff evaluating the toes always erred on the side of considering a toe "clipped" if there was any doubt.

Cost

Overall, Department staff spent 200 man-hours to maintain and care for the birds. The actual cost of personnel time and materials was \$14,310 during this second year.

Time commitment, this second year, was down significantly from the previous year due to the different chick marking technique and the fact that all the units were on WMAs, which eliminated travel time to private parcels. Again, the Department attempted to generate a "best-case-scenario" in order to help determine if this is a viable option from a cost perspective. This scenario utilized only the costs of materials and a salary rate for all hours at a technician rate. The overall program "best-case-scenario" cost for the second year was \$8,210.

Lessons Learned

- 1) Strict adherence to cleanliness of units and close monitoring of heat regulation is critical.
Very few deaths from disease were observed in the second year.
- 2) The modified marking technique (toe clipping) and restricting efforts to WMAs reduced expenses significantly.
- 3) To date, there have been no requests to Department staff for habitat or access projects from landowners with rearing units on their property.

Issues Affecting Final Cost Evaluation

- 1) It was discovered during the second year that the game farm was actually putting extra chicks in each box, during both years, to compensate for possible loss during transit. It was not an exact amount in each box, so this could impact results.

- 2) Survival and return rates were not determined due to significant costs associated with obtaining this information. In lieu of known rates of survival and return rates, we provide a range of values based on previous research.

Comparison of the Two Year Evaluation

	2011 (1st year)	2012 (2nd year)
Chicks purchased	2,400	1,660
Pre-release mortality	250	828
Birds released	2150	832
Marked birds returned	214	22
IDFG staff hours	702	200
Actual cost of personnel time and materials	\$34,000	\$14,310
Tech salary and materials Cost*	\$19,332	\$8,210
Materials only cost	\$6,076	\$4,563

*estimate utilizing technician salaries to better reflect potential costs if this was a long-term program.

Sportsmen's Results – Second Year

Idahoans for Fish and Wildlife (IFW Pocatello) said they purchased about 9,000 chicks; many were hens they received at a discount or free. They stated that they would be scaling back their effort due to difficulties getting volunteers to maintain units. IFW (Twin Falls) started with ~5,000 birds and released approximately 4,000 birds. Southeast Idaho Sportsmen for Fish and Wildlife had three units operating and also experienced unit failures similar to our efforts.

Costs of Bird-in-bag:

It was extremely difficult to determine the exact harvest return of marked birds. The below table allows for discussion based on ranges of potential return rates. Potential return rates are calculated on the number of birds released. The table utilizes the expenditures calculated in the “tech salary and materials cost” and the “material only” cost:

	Potential Return Rates			
	3.5% return rate*	25% return rate	50% return rate	70% return rate**
Tech salary and material cost				
1 st year	\$258	\$36	\$18	\$13
2 nd year	\$283	\$39	\$20	\$14
Material Only cost				
1 st year	\$81	\$11	\$6	\$4
2 nd year	\$157	\$22	\$11	\$8

*Based on return rates from Nebraska study

**Based on estimated return rates for adult “put-and take” WMA roosters

Summary

While there is some uncertainty about the exact cost of bird in the bag, or return rates, the evaluation does demonstrate that the concept of using rearing units is time consuming and mechanical failures and disease can cause large losses of birds. Initiation of a permanent program of this size would likely require significantly more resources to provide substantive benefit to sportsmen over the current WMA program.

The return rates of released chicks do not appear to be sufficient or evenly distributed throughout the season to serve as a replacement for our “put-and-take” WMA programs. It does not appear that landowner attitudes on access or habitat changed significantly based on having a unit on their property. The issues that are currently impacting habitat development (commodity prices, development pressures, etc.) are not overcome by the placement of these units.

The Department will still assist sportsmen’s groups who desire to continue this effort by issuing the necessary permits efficiently, and by providing technical assistance on habitat development and bird propagation techniques.

Resources for Interested Sportsmen as of November 2012

Below are a few links to find more information on how to raise pheasant/game bird chicks. A simple internet search of “how to raise pheasant chicks” resulted in over 56 million links.

North American Game bird association <http://www.mynaga.org/>

How to raise pheasant chicks http://www.ehow.com/how_6108845_raise-pheasant-chicks.html

Tips on raising Pheasant chicks

<http://www.pheasant.com/Resources/RearingTips/tabid/106/Default.aspx>

Day old pheasant chick guide http://www.dec.ny.gov/docs/wildlife_pdf/dayoldchicks.pdf

Raising pheasant chicks for the first time <http://www.squidoo.com/pheasants>

Pheasant chick how-to <http://pheasantchicksfarm.com/>

Proper care of pheasant chicks http://www.ehow.co.uk/how_6108845_raise-pheasant-chicks.html

All about raising pheasant chicks <http://aboutchickens.net/raising-pheasant-chicks.php>

How to begin raising pheasant chicks (video) <http://www.videojug.com/film/how-to-begin-raising-pheasants>

How to raise pheasants-University of Nebraska <http://digitalcommons.unl.edu/nebgamepubs/18/>

How to raise pheasants (MI sportsmen forum) <http://www.michigan-sportsman.com/forum/showthread.php?t=198121>

Surrogators

http://wildlifemanagementtechnologies.com/Store/Product/15:Traditional_Surrogator

Game bird supplies and instructions <http://www.gamebirdfarm.net/categories.php?cat=56>

Quail surrogator <http://lakecumberlandgamebirds.com/contents/en-us/d176.html>

Tips for raising pheasants <http://oakwoodgamefarm.com/pages/Tips-for-Raising/>

Game bird gazette (magazine) <http://www.gamebird.com/news.html>

Breeding and raising game bird chicks

http://www.oocities.org/pheasants_1/rearingandcaretaking.html

Photo of Surrogator®.



Photo of sportsmen constructed rearing unit



Photo of IDFG wing barrel



Photo of toe clipping (2nd year)

