#### **Those crazy bobwhites!**





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# Not your Grandpa's quail

Credit <u>Tall Timbers Research Station</u> – Much of this comes from their new <u>Quail Management Handbook</u> – results of having radio-tracked over 30,000 wild quail!!!!!!

- Only 1 in 15,000 quail live to be 6 years old!

- They are not monogamous

- Males typically incubate about 25% of all nests

- Quail chicks often leave their parents at 3 or 4 weeks of age, and mix and match with other broods. This is called "brood amalgamation."

- In fact, by 2-weeks of age, nearly 40% of broods are groups of chicks from different parents.





#### Plus or minus a few %...

- Quail are exceptional at dying

- At Tall Timbers – where quail densities and populations are at record, all time highs – average annual survival is 23%

- The difference between an increasing or declining quail population is only a few percentage points in annual survival

- If annual survival drops below 15%, they decline, and if it rises above 20% they increase

- Of 100 quail alive in October, only 50 are alive in April and only 40% live through the nesting season yielding 20% survival

- What does this tell us? We have to MANAGE to maximize survival – EVERYTHING we do is focused on maximizing survival



## **Exceptional breeders, too**

- Quail are exceptional at reproducing
- For every 100 hens alive in April 75 nests will be produced, so if 50 lived = 25 hens
- Making 20 nests incubated by hens and 4 by males
- Results in hatch of 336 chicks (14 eggs)
- 25% of those survive until fall, adding 84
- Which puts this population 4 to the good side of 20%





## The Rock of Gibralter

- Maximizing quality habitat is key to everything

- It is not the ONLY thing
- But it is the FOUNDATION, the rock upon which all else is built
- Remember the RULE of THIRDS !!!!!!
- 1/3 thickets, 1/3 weedy first and second year growth, 1/3 grassier nesting cover







# Who will bring them to us?

- The "Fall Shuffle"
  - \* Phenomenon of lots of mixing and matching in fall
- The "Spring Fling" \* Coveys break up in spring naturally
- Bottom-line is...quail are hardwired genetically to move a lot more than people think
- Some have been documented moving more than 100 miles
- I have seen more than a mile in 1 day





## The landscape context

- Covey home range 20 to 50 acres, but some overlap
- So is every 20 acres of good quail cover equal? No, landscape context matters
- 50 acres of great quail cover that is isolated, meaning a great distance from other good quail cover, does not have the same potential as 50 acres of good quail cover within the context of a landscape with multiple properties being well managed for quail
- Does this mean small property owners should give up? NO
- It does mean you will need to have realistic expectations and encourage your neighbors to manage



## Habitat basics – 1

#### - 1/3 THICKETS

- Critical in winter, and important in summer
- Not all in one place, but evenly distributed
- No umbrellas please ! <sup>(2)</sup> Thickets need stem density at ground level
- Wild plum, indigo bush, wax myrtle sumac (better in summer), blackberry, hawthorns, green brier, shrub lespedeza, etc.







## How to develop thickets

- Allow them to develop naturally they will with time
- Plant shrubs time and labor intensive, but can speed things up
- If planting, plant closely 3' x 3' or 4' x 4' spacing remember stem density
- Fell less valuable trees (red maple, scrub pine, sweetgum, etc.) out into field edges and allow them to grow up
- Cut-back woods edges, or cut-back borders fell trees back away from fields in sections and allow them to grow up
- Allow old fencerows to grow up
- Minimum size about 30' x 30'







## Quail mortality causes

- 80% 95% of quail annual mortality is caused by predation
- Several studies clearly show the value of thickets – quail pursued by raptors head to the nearest thickets to survive
- Think of a shell game the more walnut hulls the harder it is to find the coin, same with thickets and quail coveys
- Protective cover is the #1 defense against predation





## Habitat basics - 2

- 1/3 WEEDY FIRST and SECOND YEAR GROWTH (first and second year after disturbance)
- Ragweed, partridge pea, beggarweed, poke weed, some annual grasses
- Two purposes 1) Creates great bugging area, and 2) Doubles as best winter feeding area
- Learn to understand "bare ground" component





#### **Bare ground component**







#### How to create weedy areas

- Disturbance is the key done in rotation, prescribed fire and disking are the two primary techniques
- If starting with idle crop land, very easy begin a rotational disking program, disking about 1/3 annually during winter
- If starting with pasture or hay lands must kill non-native grasses like fescue and Bermuda first – then start rotational disking or burning program (may take multiple herbicide applications)
- If starting with pine timber thin and rotationally burn
- If starting with cut-over must decide how to re-plant and if and where to manage for quail



## Habitat basics - 3

- 1/3 NESTING COVER easy-peasy just let weedy cover go an extra year
- Nesting cover is almost never a critical factor when managing for quail
- It develops on its own broom sedge, little bluestem, Indian grass, plume grass, etc.
- Never need more than 30% to 40% grass even in nesting cover
- Too much grass is worse than too little
- Nesting cover often doubles as roosting cover



## Pine timber management

- Timber management is your...number 1 goal, not your number 1 goal but still important, or not a major goal at all – This is the first thing you need to decide
- Tall Timbers recommends keeping pine timber basal area between 40 and 60 sq ft (Huh!!!!??????? you say)
- Sunlight is the first key and what the numbers above translate to are:
  1) Open letting in 60% 65% of the canopy sunlight at mid day, to 2) a bit less open, letting in about 45% to 50% of the sunlight at mid day
- Tall Timbers found no added benefit to going any more open than 40 sq ft.
- Note this is for loblolly and short-leaf pine, long-leaf BA can be higher



#### **Pines continued...**

- Reducing pine density down to what is termed a "plantation basal area" should be done in stages if timber income is important
- E.g. if you have a 20 year old stand of loblolly pine, do a standard thinning first, then 5 to 7 years after that do a much heavier second thinning
- If you are not concerned with timber income, you can thin heavily, early but be aware that storm damage can be severe
- If you are managing pines, crop field edges and old fields for quail do your best pine management nearest to the fields, and keep your denser pines away from them, this maximizes habitat and minimizes creating "death traps" near the better fields







## The "Fire Bird"

- Fire should be used to truly turn open pines into quality quail cover
- 3 most important fire considerations:
  - 1) frequency
  - 2) scale
  - 3) season





## **Fire Frequency**

- Fire frequency sometimes referred to as "return interval"

- Which means length of time between burns on the same piece of ground or "how often to burn"
- <u>For intensive bobwhite management burn every 18 months to two</u> <u>years</u>
- Another KEY POINT: do not fall behind on frequency...even if it means increasing scale, or changing season of burn, or pushing the limits on season





#### **Fire Scale**

- Fire scale very simple is the size of the individual burn units

- Tall Timbers is very clear on this ideally burn blocks should be 50 60 acres in size, and where possible, never more than 150 200 ac
- As size of burn blocks increase, interspersion of habitats declines (what this means is, the larger the burn block the harder it is to meet the THIRDS RULE)
- Burning in large blocks in late winter removes too much cover too quickly, exposing quail to migrating hawks in particular
- If large burn blocks must be used for practical reasons, methods should be employed to maintain shrubby cover distribution



## Fire season, or timing

- Fire season – means WHEN the burn is conducted

- Seasons generally include:
  - 1) Winter (January February)
  - 2) late Winter early spring (March –early April)
  - 3) Spring (April early May)
  - 4) late Summer early Fall (August September)
  - 5) Fall (October November)
- Not much fire occurs during summer (generally too humid too many animals nesting
- Season determines affects (mostly other factors are involved)





### Fire season continued

- Generally speaking earlier burning promotes shrubs and forbs and later burning promotes grasses
- This means winter burning is not likely to control understory woody cover if that is the goal...it will take some "growing season" fire to help control woody growth (either spring or late spring, or late summer to fall)
- BUT it was best said to me "Plan to burn as much as you can from winter to spring, and start burning as soon as weather allows it. Chances are some of the seasonality will take care of itself"
- Best overall is to vary season over time...and that tends to happen on its own when you have a lot of burning to do



# **Small fields within pines**

- Tall Timbers does not recommend small fields in the old sense of "food plots"
- But they do recommend as much as 30% of an area within a pine stand be in fields 2 5 acres in size
- These fields serve as brood fields, especially on sandy or low pH soils
- Many times they fall disk, plant wheat and then allow to grow fallow which often leads to ragweed which is THE preferred brood cover
- Over time fields may need revitalization liming, fertilizing, etc., and and sometimes they plant them to help rebuild the soil (they recommend sorghum alum, pearl millet and brown top millet)



# Agricultural lands

- Tall Timbers note on quail decline:

"Fields became bigger to make way for bigger equipment and center pivot irrigation, chemicals and commercial fertilizers eliminated the need for crop rotations and fallow land, while genetic engineering and equipment advances did away with weeds, bugs and waste grains"





# Agricultural lands cont'd

- Critical to manage all available upland woodlands nearby to the maximum extent possible to increase total acreage
- Make field borders and hedgerows as wide as possible, (100' 200') fewer, wider borders are better than lots of narrow ones
- Gain control of Bermuda grass and others invasives
- Manage encroachment from farming –borders tend to get smaller and smaller if you do not draw a line in the sand
- A few young pines in hedgerows seem to encourage use faster (but they must be kept small by topping)
- Manage field borders with rotational disking (just like fallow land)



## **Predator management**

- Defined: "Using a combination of different techniques to reduce the risk of predation to a quail population."
- Predator threshold the point where abundance of predators on a property exceeds a point where predator control is warranted
- Tall Timbers determines this by doing a "predator index" – a method of using baited sand rings to survey for predator abundance – when the index exceeds 20% - time to trap





## **Predator research shows...**

- Production of young quail was inversely related to predator abundance
- Quail had 44% more chick production on trapped versus untrapped areas
- Predator trapping increased chick production and reduced variations in demographics from year to year
- Mammals like raccoons, foxes, bobcats, opossums, and skunks are key culprits
- Avian predators (hawks and owls) more problematic in winter



#### **Predator BMPs**

- Increased quantity and quality of escape cover (thickets as described in earlier section)
- Insure all 3 key habitats are well interspersed (don't have feeding a long way from escape cover remember the "softball rule"
- Reduction or removal of predator "magnets" like dirt laden debris piles, old buildings not good for any use, junky areas, etc.
- Predator monitoring with intense trapping when warranted (every year!! predators rebound quickly, trap every year)
- Do not over burn during late winter causes too much reduction in cover during peak hawk migration



## Hunting effects...

- "Hunting just gets the weak, or the ones predators would get anyway" – NOT SO!!!
- Quail CAN be overhunted
- Recall overwinter survival THE # 1 factor in affecting long-term quail populations
- Hunting mortality should not exceed 15% of the population
- Hunt an area or course only 1 time every 2 weeks





## Example

- 200 acres use fall count and estimate 5 coveys
- Let's say 14 per covey = 70
- $-70 \ge 0.15 = 10.5$
- 10 quail total kill, or 2 per covey
- Stay conservative to be sure
- Remember the dogs are happy regardless of how many killed





## What about pen-raised...?

- Studies tend to show no harm from disease or parasites
- But they do serve as attractors for predators
- They are capable of surviving and reproducing, but at low numbers
- Very poor at raising their broods
- Studies have failed to show they can re-populate long -term





# How many quail do I have?

- Fall covey counts conducted between October 15<sup>th</sup> and November 15<sup>th</sup> are considered the "gold standard" – but time and labor intensive

- June whistling male counts will work well for most landowners
- Begin at sunrise, listen for 5 minutes at each stop, can listen up to about 8:30
- Generally, for every 1 singing male heard at a stop, you will have a covey during fall, which also equals a fairly low density of quail about a quail per 5 to 10 acres
- Hearing 3 to 4 males per listening point = 1 quail per 2 to 3 acres





Northern Bobwhite Indigo Bunting Prairie Warbler Field Sparrow Eastern Towhee

in a start point hard to hear

Mark an observation as VO if the individual was seen, but never called.

#### **Economics...**

- Can be expensive...but does not have to be
- Tall Timbers and most plantations operate on about \$80.00 / acre / yr
- Some spend as much as \$200.00 / acre / year !!!!!
- Georgia DNR operates their premier quail hunting area – Dilane WMA on about \$15.00 / acre / year
- If timber income is reinvested into management, can offset costs +





#### **DIY...**

- The more you learn how to do yourself, or by working with friends and neighbors, the less expensive things are
- It helps to already have farm equipment you own, or can borrow
  e.g. reduce a farmers land rental rate if they do some work
  for you
- Get work (or more money) out the hunt clubs renting your land
- Prescribed fire very effective and cheap once you become comfortable with it
- Spend money wisely do not waste money on released quail, or paying someone to trap before you really have the habitat



## **Cost-share / incentives...**

- General EQIP available statewide – must register with USDA FSA at local USDA Service Center

- EQIP Working Lands for Wildlife pine savanna program Charlotte, Pittsylvania, Southampton, Dinwiddie, Greensville, Sussex, Halifax, Caroline, Hanover, Essex, King&Queen and King William)
- DOF / DGIF Quail / Forestry BMPs Bland, Wythe, Greensville, Sussex, Southampton, Culpeper, Madison, Orange, Rappahannock, Halifax, Augusta, Essex, King & Queen and King William
- CRP, CREP, CSP all FSA program available periodically



#### Any quailstions????

