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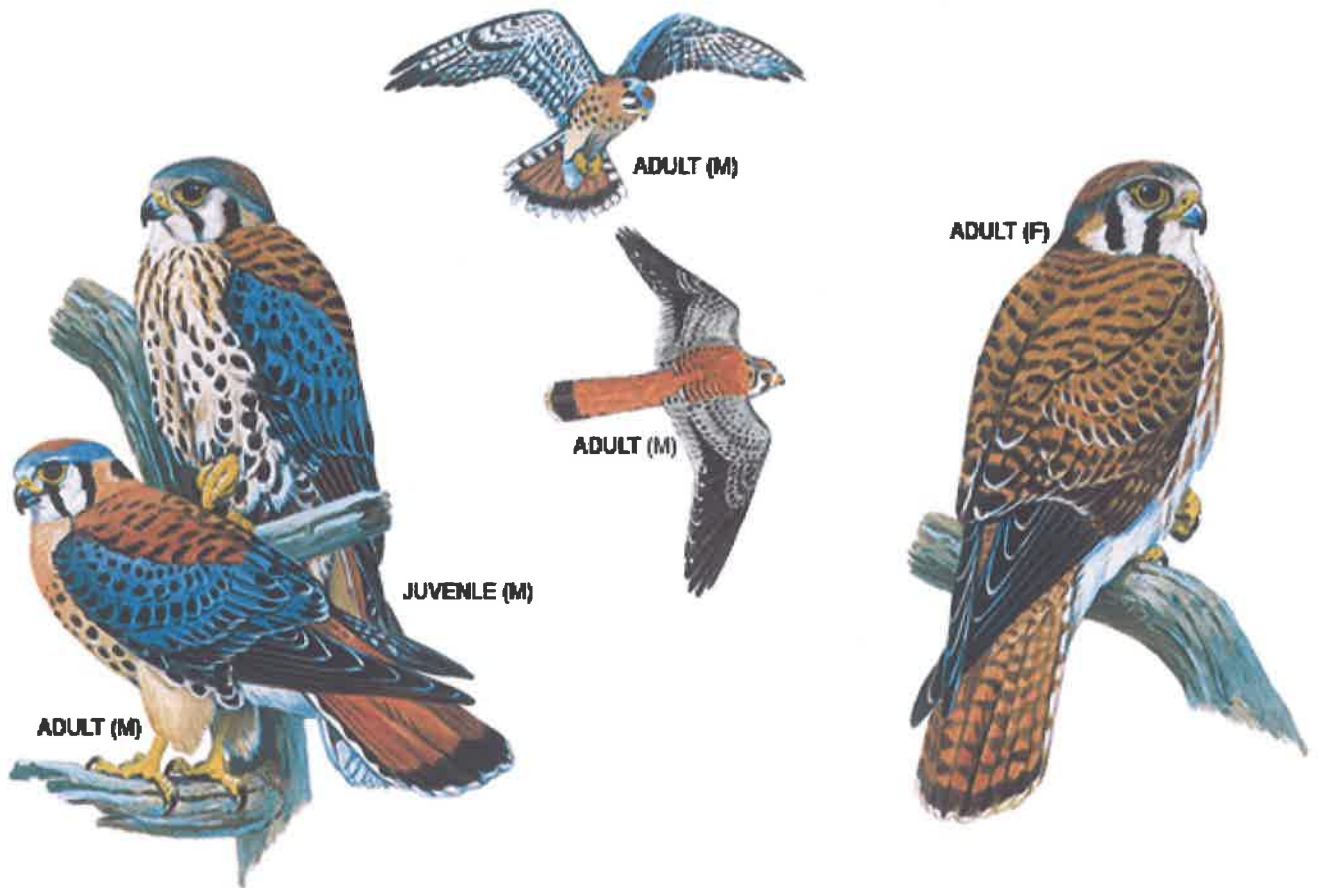
Excellent. Make small  
corrections as necessary.

Karen Lawrence

Per. 2 Accelerated Biology

March 24, 2013

**American Kestrel (a.k.a. Sparrow Hawk)**



**A- Classification:**

Classification	American Kestrel (1)	Meaning (2)
Kingdom	<i>Animalia</i>	<i>Anima</i> is soul
Phylum	<i>Chordate</i>	Spinal chord
Subphylum	<i>Vertebrata</i>	Has vertebra
Class	<i>Aves</i>	<i>Ave</i> is flying, (aviation)
Order	<i>Falconiformes</i>	<i>Falc</i> means sickle, sickle like talons
Family	<i>Falconidae</i>	Same as above
Genus	<i>Falco</i>	Same as above
Species	<i>Falco Sparverius</i>	<i>Spar...</i> is like sparrow, literally means sparrow hawk

3) It is important to understand that the American Kestrel is most closely related to Merlins so that one can study any past management plans for those species and see if anything can carry over to develop a management plan for Kestrels.

## B- Behavior:

### 1) Innate behaviors-

A) Kestrels are able to see ultraviolet light which lights up urine and causes it to glow. American Kestrels follow these urine trails to find the small animals that they eat. Unless humans cause a depletion of small animals for the Kestrels to eat than them following trails of urine should not be disturbed by humans.

B) American Kestrels, like squirrels, hide surplus food in knot holes, tall grass and almost anywhere else. This was probably developed by the Kestrel hundreds of years ago as a way to make sure that they got the food as opposed to a different species, <sup>getting the food.</sup> Too much human activity could uncover these caches and in some areas leave the Kestrels with less food by at Phillips Farm, with it plentiful food supply, which should not be much of a problem.

### 2) Learned behaviors-

A) Kestrels are often seen on TV during sports games as they have learned that humans put out big lights which attract moths and other small animals (most after the moths) that they can then eat. This is a selective learned behavior in that not all populations know this handy trick since some, like the ones at Phillips Farm, don't have as many huge bright lights although they do still have some along the highway.

B) When American Kestrels are in their nests and they have to use the bathroom they scoot to the edge of the nest and squirt the feces on the wall of the nest to prevent the young from sitting in the feces. They learn this by watching their parents do this behavior when they are young.

7) It is important to know that American Kestrels can see ultraviolet light, mainly for research purposes, since humans often use ultraviolet light to shoot videos of animals at night to gain a more inside look into this particular animal's life. If researchers were to do that with Kestrels they would disturb the birds due to the fact that they can see the light.

**C-Reproduction, Growth and Development:**

1) For a male American kestrel to attract a female American kestrel he flies up high, yells, "klee-klee-klee" and dives down towards the ground. After a female chooses a male, the new pair will exchange gifts of food to cement their bond. Although American kestrels do mate for life, a young female will mate with several males in her first season before settling down with one male. ( \_\_\_\_\_ , \_\_\_\_\_ )

2) The American kestrel is a cavity nester. They usually nest in small tree holes. These holes are typically made by woodpeckers, but if woodpecker made holes are not available an American kestrel will settle for cavities in building or specially built bird boxes. Other than cavity space for nesting, a good overall habitat and an ample supply of food they do not have any extra requirements. All of these are provided at Phillips Farm, although there may not be quite enough nest cavities so it would be a good idea to put up some bird boxes. ( \_\_\_\_\_ , \_\_\_\_\_ )

4) The American kestrel lays 3-7 eggs (usually 4-5 eggs) that take 26-32 days to hatch. The eggs are brownish and mottled in color. When the eggs hatch, the young are covered in white down and open their eyes after only 1-2 days. When the babies are really young the male feeds the female who, in turn, feeds the babies. As the young get a little bit older the male will feed them directly. It takes the young 27-34 days to fledge and begin to learn how to fly. After fledging the young depend on their parents for an additional 2-3 weeks. ( \_\_\_\_\_ , \_\_\_\_\_ )

7) It is important to understand the specific reproductive behaviors of the American kestrel because they only nest in cavities, so even if the area is perfect for the birds to hunt they will not be able to reproduce in this area due to a lack of cavities. This is what happened on the East coast of the US when the American kestrels' habitat was destroyed. What was once the most plentiful

bird in the area is now gone from some areas because they had nowhere to nest anymore.

(Massachusetts Audubon), \_\_\_\_\_ )

**D- Genetics/Population Genetics:**

1) (Image from allaboutbirds.org) American Kestrels are found throughout North and South American but not in Asia, Africa, Australia, Europe or Antarctica.

American Kestrel  
*Falco sparverius*



2) In the 1980's it was thought that there <sup>was</sup> about 1.2 million nesting pairs of American Kestrels in North America (The Cornell Lab of Ornithology) but in the past 30 years these birds have faced major issues, all with humans. In Massachusetts alone the population decline seen in local bird counts has been huge. (Massachusetts Audubon) Along with destruction of habitat the American kestrel is also losing precious prey sources and nesting cavities to what is known as "clean farming". Clean farming is when farmers not only clear their fields but also all the brush

and shrubs around their fields. Even though the population has declined the American kestrel is still considered “least concern” by the IUCN.

3) While there may be some events that could be catastrophic that is unlikely due to the large and genetically diverse population. One strange event worth mentioning is fire. Fire may be detrimental to some species but not to most birds, including the American kestrel. For raptors in general fire is a good way to catch some easy prey. It also leaves behind dead snags which provide great perches and even nests for the American kestrel. Insects are also attracted to this large supply of dead wood. In turn this attracts woodpeckers which provide even more nest cavities. ( *The American Kestrel: a Falcon of Many Names*, Wauer, pg. 80)

6) It is important to understand the genetics and population genetics of the American kestrel to carefully predict future trends in population. Since this bird is currently not endangered but it is declining in population (Massachusetts Audubon, Cornell Lab of Ornithology) we can use all the information we can gather on population genetics to prevent the American kestrel from joining the ranks of endangered animals.



**E- Evolution:**

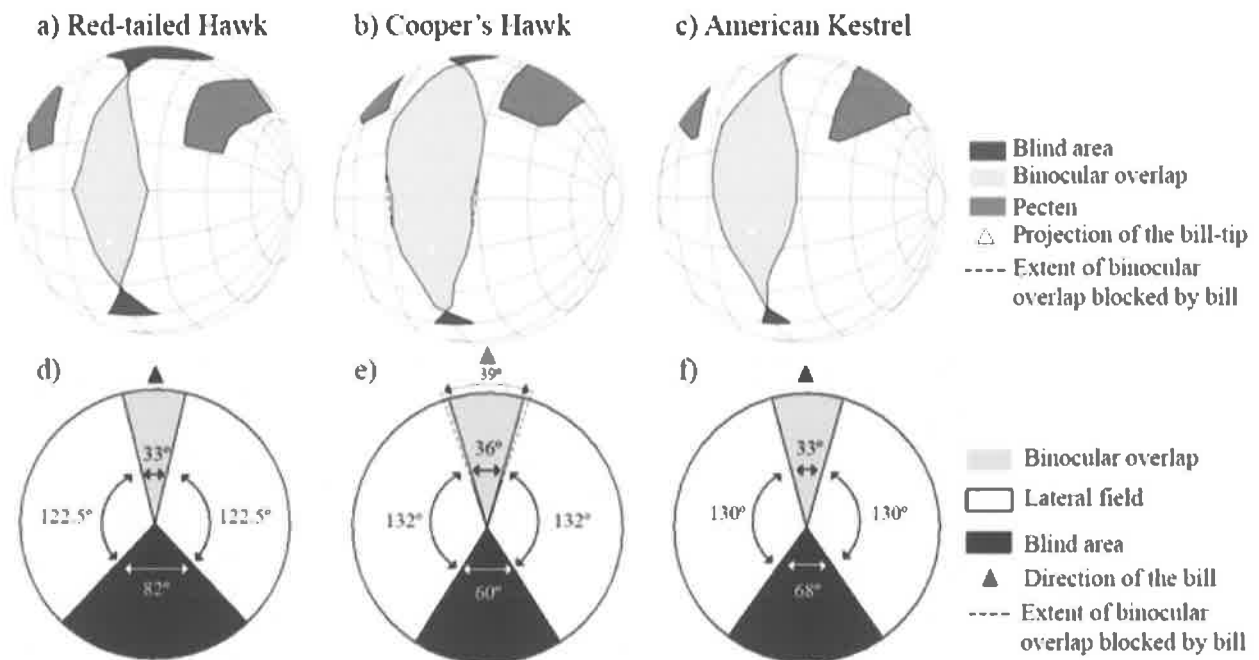
1) see other sheet

2) The American kestrel is a member of the subfamily *Falconinae* which consists of all falcons so these falcons are their closest relative. The closest relative of this subfamily is the other member of the family *Falconidae*, the subfamily *Polyborinae* or caracaras. The single closest relative is the Merlin, another small falcon in the subfamily of *Falconinae*.

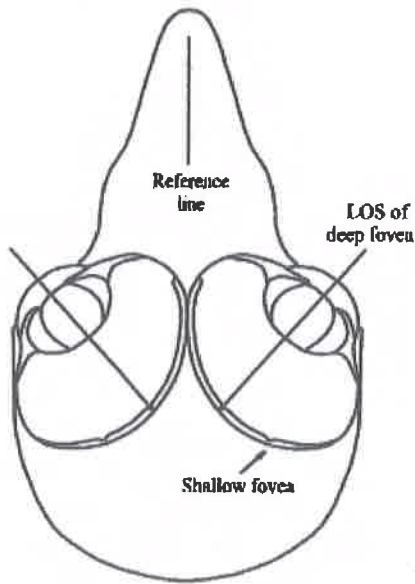
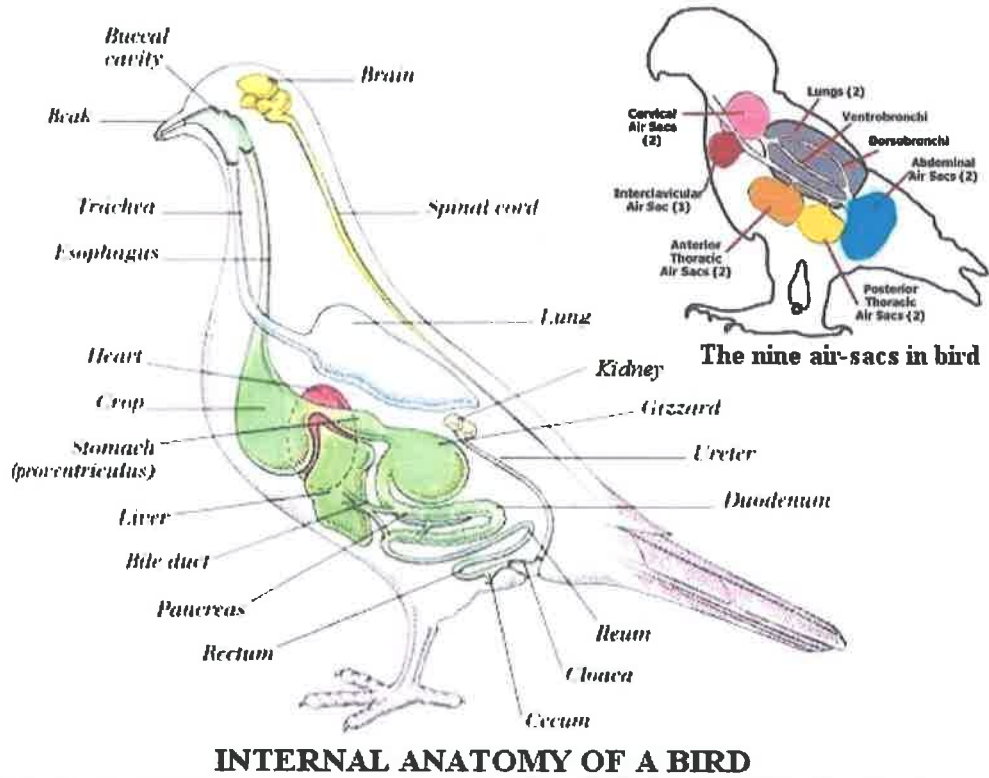
6) It is important to understand the evolution of the American kestrel because since the Merlin is its closest relative if there is a management plan for the Merlin out there than some of the information should be able to carry over to the American kestrels.

**F- Physiology:**

1) American Kestrels, like all birds of prey, have exceptional vision. This group of birds relies mainly on their vision to hunt. Unlike humans, who have one fovea per eye, birds of prey have two foveae per eye allowing a lot more color perception (to aid in food identification) and sharper vision. They also have proportionately larger eyes.



2) I could not find anything about American Kestrels body plans or much about birds of prey in general. I was able to find some information about birds in general so I included that.



5) It is important to understand how an American Kestrel's eye works and how well they can see so that humans can avoid putting things that will disrupt a Kestrel anywhere near them since they can see so well.

Photos of American kestrels:



Works Cited:

"A Chapter from the Electronic Book: A Life Histories of Familiar North American Birds." <sup>2013</sup> ?  
<sub>2013.</sub>  
*Birds, Familiar: American Kestrel, Life Histories of North American Birds, A.C. Bent.* N.p., n.d.  
Web. 03 Feb. 2013.

<sup>2013</sup>  
"All About Birds." *American Kestrel, Life History.* N.p., n.d. Web. 03 Feb. 2013.

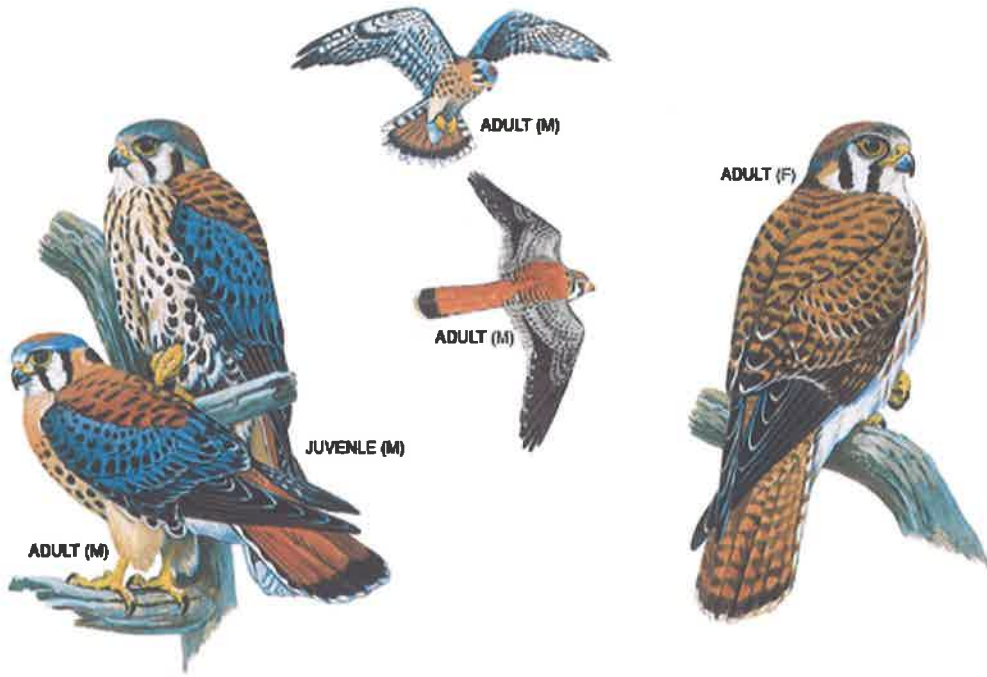
<sup>2013</sup>  
"American Kestrel." *National Audubon Society Birds.* N.p., n.d. Web. 03 Feb. 2013.

<sup>2013</sup>  
"American Kestrel | Mass Audubon." *American Kestrel | Mass Audubon.* N.p., n.d. Web. 24 Mar. 2013.

Cornell Lab of O.

I will add citations. <sup>OK</sup>  
American Kestrel (a.k.a. Sparrow Hawk)

Excellent job overall!



**Classification:**

Classification	American Kestrel (1)	Meaning (2)
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3) It is important to understand the what species the American Kestrel is most closely related to so that one can study any past management plans for those species and see if anything can carry over to develop a management plan for Kestrels.

You did a good job on this in your evolution section. You can use that same sentence here.

peregrines? merlins?  
→

**Behavior:**

1: Innate behaviors-

A) Kestrels are able to see ultraviolet light which lights up urine and causes it to glow. American Kestrels follow these urine trails to find the small animals that they eat. Unless humans cause a depletion of small animals for the Kestrels to eat than them following trails of urine should not be disturbed by humans.

} Cool!

B) American Kestrels, like squirrels, hide surplus food in knot holes, tall grass and almost anywhere else. This was probably developed by the Kestrel hundreds of years ago as a way to make sure that they got the food as opposed to a different species. Too much human activity could uncover these caches and in some areas leave the Kestrels with less food by at Phillips Farm, with it plentiful food supply, which should not be much of a problem.

} Good!

2: Learned behaviors-

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← defecate? I'm not sure the correct word for birds "evacuating" is!

Cool! }

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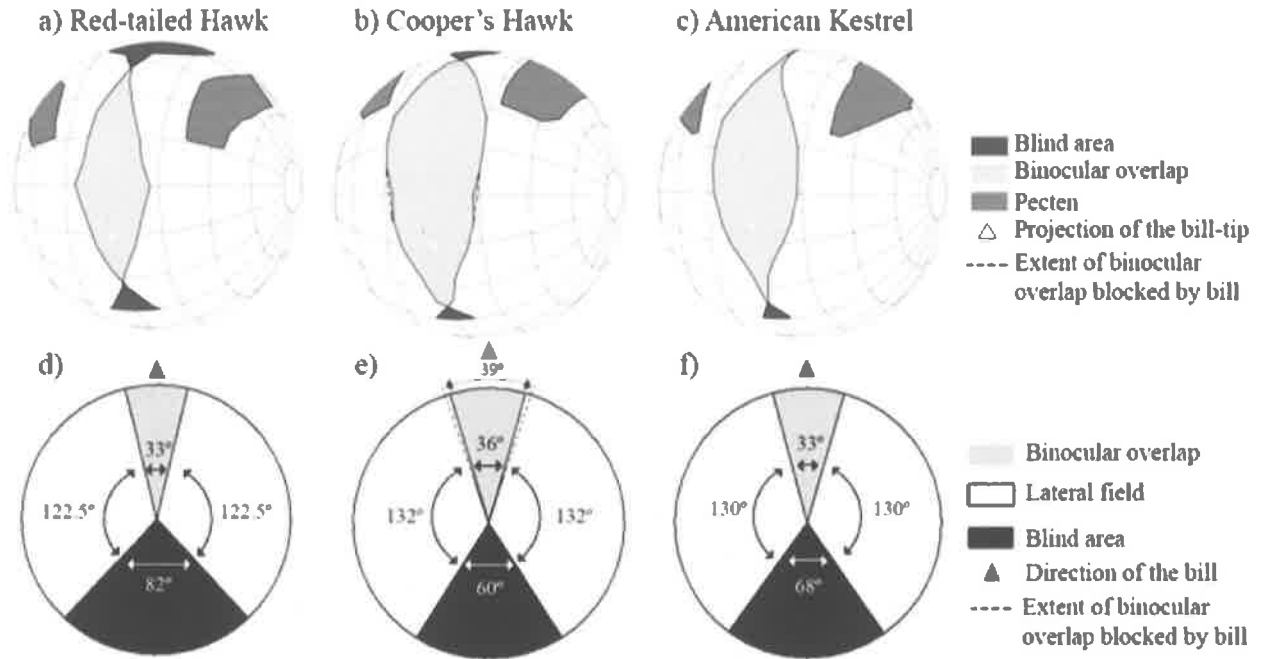
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**Physiology:**

1: American Kestrels, like all birds of prey, have exceptional vision. This group of birds relies mainly on their vision to hunt. Unlike humans, who have one fovea per eye, birds of prey have two foveae per eye allowing a lot more color perception (to aid in food identification) and sharper vision. They also have proportionately larger eyes.

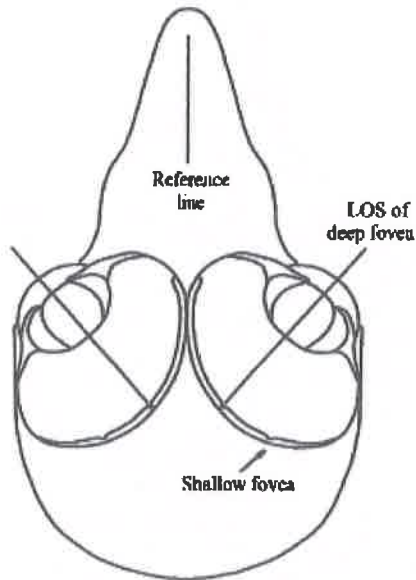
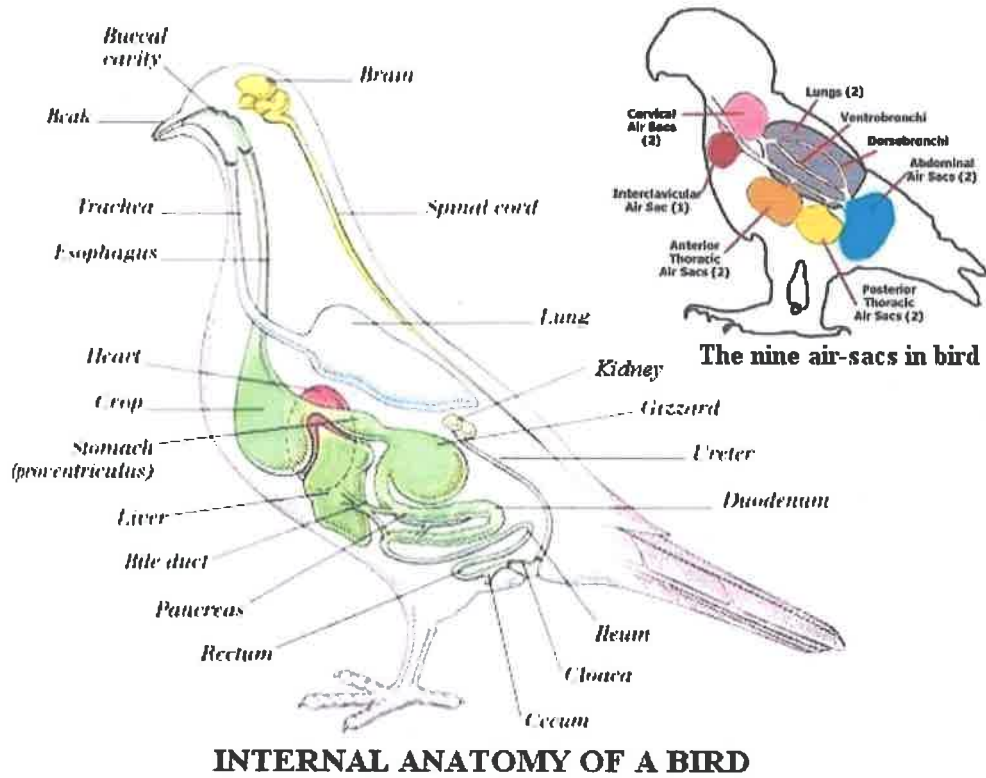
Wow!





2: I could not find anything about American Kestrels body plans or much about birds of prey in general. I was able to find some information about birds in general so I included that. *General*





5: It is important to understand how an American Kestrel's eye works and how well they can see so that humans can avoid putting things that will disrupt a Kestrel anywhere near them since they can see so well.



C: Reproduction, Growth and Development

1) For a male American kestrel to attract a female American kestrel he flies up high, yells, "klee-klee-klee" and dives down towards the ground. After a female chooses a male the new pair will exchange gifts of food to cement their bond. Although American kestrels do mate for life, a young female will mate with several males in her first season before settling down with one male.

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Good!

4) The American kestrel lays 3-7 eggs (usually 4-5 eggs) that take 26-32 days to hatch. The eggs are brownish and mottled in color. When the eggs hatch, the young are covered in white down and open their eyes after only 1-2 days. When the babies are really young the male feeds the female who, in turn, feeds the babies. As the young get a little bit older the male will feed them directly. It takes the young 27-34 days to fledge and begin to learn how to fly. After fledging the young depend on their parents for an additional 2-3 weeks.

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Good. Do you have a reference for this?

## E: Evolution

1) see other sheet *Good.*

2) The American kestrel is a member of the subfamily *Falconinae* which consists of all falcons so these falcons are their closest relative. The closest relative of this subfamily is the other member of the family *Falconidae*, the subfamily *Polyborinae* or caracaras. The single closest relative is the Merlin, another small falcon in the subfamily of *Falconinae*.

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} *very good.*