

Tree Swallow (*Tachycineta bicolor*) Development and Aging Summary



Figure 1. Tree Swallow breeding timing

Table 1. Distinguishing Traits

Age	Characteristic	Age	Characteristic
0	Down only, egg sized	7	All tract unsheathing except capital
1	Caudal, dorsal and alar visible	8	Eyes fully open and alert
2	Dark pink beak tip	9	Chirping, rests sternal
3	All feather tracts visible	10	Legs scaly
4	Ears fully open	11	Can climb
5	Ventral tract in pin	12	Can perch
6	All tracts in pin except capital	13 plus	Singing

Table 2. Feather Tract Development

Day	Capital	Dorsal	Humeral	Alar	Femoral	Crural	Caudal	Ventral
0	N	N (V)	N	N (V)	N	N	N	N
1	N	V	N	V	N	N	V	N
2	V	V	V	V	V	V	V	N
3	V	V	V	V	V	V	V	V
4	V	V	V	V	V	V	V	V
5	V	V	V	V	V	V	V	P
6	V (P)	P(U)	P	P	P (U)	P(U)	P	P(U?)
7	P (U)	U	U	U	U	U	U	U
8	U	U	U	U	U	U	U	U
9	U	U	U	U	U	U	U	U
10	U	U	U	U	U	U	U	U
11	U	U	U	U	U	U	U	U
12	U	U	U	U	U	U	U	U

N – none visible, V – visible below skin, P – pins erupting, U – feathers unsheathing

Day 0 (Hatch)



Key Traits:

- Pale pink skin with no feather tracts visible*
- Tufts of down present on capital, dorsal, and humeral tracts (can be wet)
- Egg tooth present on pale white-yellow bill with gape
- Slow, weak, infrequent uncoordinated movement
- Unable to right self purposefully

General Description:

The body is completely pale pink and translucent; eyes appear as dark gray orbs and many internal digestive organs are visible through the skin. The abdomen is round and distended. The only feathers are a few tufts of gray down on the capital, humeral, and dorsal tracts; these can still be wet if hatch was very recent. *Late in the day, it is possible for alar and dorsal tracts to begin to appear*.

Movement is weak, uncoordinated, and infrequent. It cannot hold its head up and often has it curled beneath its body.

Freshly hatched are about the same size as the egg, but often become larger than the egg within the first day. Nestlings remain together tightly in a pile; they are unable to thermoregulate on their own.

An egg tooth is present as a sharp tip on the upper mandible. The egg tooth is present as late as day 5 and is an unreliable aging characteristic.

The tip of the bill is pale and often flesh colored which contacts with a white to yellowish gape. The gape is large and fleshy and remains so throughout the nestling stage. The color contrast of the beak is sometimes useful in age determination.

Day 1



Day 0



Key traits:

- Dorsal, alar and caudal tracts ALL visible
- Down dry and fluffy
- Occasional slow, weak, uncoordinated movement
- Eye slit present
- Ear indentation apparent

General Description:

Some black stippling is present on the dorsal, alar, and caudal tracts; these are feathers developing under the skin. Down is noticeably dry and fluffy. The eyelid and opening are forming and appear as a closed slit on each eye. The ear has a ridge and an indentation where the opening will be forming. Nestlings are noticeably larger than eggs remaining in the nest.

Day 2



Day 0



Key traits:

- All tracts except VENTRAL visible
- Dark pink beak tip

General Description:

All eggs in the nest have typically hatched by this point. Movement is infrequent, weak and uncoordinated. Dorsal, caudal and alar tracts are the most visible; femoral and crural can be hard to see. Tiny bristles appear on tip of the tail where the remiges will emerge. The abdomen is bulging with internal organs clearly visible. Egg tooth is dull but usually still present. The beak is dark pink, which contrasts with the white-yellow fleshy gape.

Day 3



Key traits:

- All feather tracts visible
- Darkening of skin around capital, dorsal, caudal, and alar tracts
- Beak is darkening and appears 'brown'
- Deep hollow for ears

Day 1



General Description:

All feather tracts are visible and the earliest appearing are darkening and no longer appear just as black stippling. The color of the beak is starting to transition from pink to gray. At this stage it can appear brown or start to look gray around the nares. Movement is weak and infrequent. Ears are almost fully open; it can be easy to mistake the deep hollow for completion.

Day 2

Day 4



Key traits:

- Ears fully open
- First vocalizations (clicking)
- Quicks of toenails visible
- Weak infrequent movement

General Description:

Ears are fully open, and first vocalizations are produced that sound like clicking. Beak tip and nares are continuing to darken. All feather tracts are visible and skin starting to appear more gray overall. Down from hatching is still visible. The skin no longer looks smooth and is beginning to prickle as pins form beneath the skin. The toenail quicks are no longer translucent and are detectable; they can still be light in color and often appear pink.

Day 3



Day 5



Day 3



Day 4

Key traits:

- Ventral tract in pin
- Alar pins almost breaking skin
- Skin greater than 50% pink
- Eyes starting to open
- Able to lift head temporarily

General Description:

All feather tracts are visible except for the ventral tract which has pins starting to break the skin; they are seen as white bumps against pink skin. Alar tract pins are clearly visible but have not broken the skin. Visceral organs are still somewhat visible and the distended abdomen is receding. Fat accumulation on the abdomen is often notable now. The beak is continuing to turn gray. It is not uncommon to observe some swallowing reflexes or beak smacking. Nestlings will click together. Frequent movement is more coordinated but weak; occasionally the head is lifted. Rarely and usually when straining, the eye will partially open.

Day 6



Day 4



Day 5

Key traits:

- All tracts in pin, except capital
- Able to right themselves/turnover
- Skin greater than 50% gray

General Description:

Skin pigmentation is substantially darker over most of the body with noticeable fat accumulation on the abdomen. Abdomen is still distended but not as transparent. Dorsal, femoral and crural feathers are close to unsheathing. Movement is periodic and now often includes flapping motions when unbalanced and feet have started to grasp; this seems to tire them out quickly (deep regular breathing). When straining eyes open wider and longer than previously, but are not alert or aware. Clicking is still the only vocalization.

Day 7



Key traits:

- All tracts unsheathing (except capital)
- Skin greater than 75% gray and lightly fuzzy
- White feathers on dorsal tract visible
- Uses wings to brace and balance?

General Description:

Periodic bursts of frequent movement; can hold it's head up briefly and extends wings for balance. Movement followed by sleep. Abdomen is round and internal organs are hard to see. Legs and toes are turning gray, and grasping of toes appears more deliberate. Beak smacking and clicking occurs; tip of the beak is nearly solid gray. Eyes are often 'watery' and eye slit may appear all the way open; may turn it's head in direction of stimuli and seems to detect light changes. "Blinking" behavior is not uncommon. Body size is similar to that of adults. All feather tracts are in pin and barely unsheathing except capital; capital tracts are often last to pin, but caudal and capital are both last to unsheathe.

Day 8



Key traits:

- Eyes open and alert
- Fear behavior
- Body feathers uniformly 'fuzzy' and obscures greater than 50% of skin

General Description:

Eyes are fully open and alert though may not stay open for extended periods of time; will hold head up more strongly. Overall movement is still weak but increasingly coordinated. Will jump or shake at sudden noises or movements after being very quiet and still (fear behavior); these physical behaviors will occur in response to adult vocalizations. Beak is dark. All feather tracts are now unsheathing; body feathers appear fuzzy and obscure view of pink skin.

Day 6



Day 9



Key traits:

- Able to rest sternal with head up
- Chirping for the first time
- Dorsal and ventral tract feathers no longer bristly bundles

General description:

Movement is stronger and coordinated; able to hold feet under it's body and support resting sternal. Still relies on extending wings for balance. Feet now strongly cling with resemblance to perching behavior, and some crawl quickly. Still appear sleepy and easily over exerted. The nest is starting to become crowded.

Day 10



Key traits:

- Frequent, coordinated movement
- Legs scaly
- Alar and caudal tracts no longer bristly bundles

General description:

Movement is frequent and coordinated; they do not appear to tire easily. All feathers are unsheathing except a few around the beak. Alar and caudal feathers are exposed enough to no longer look like a sheathed bundle. Eyes are open and alert most of the time. The head is strongly held up but not for sustained amounts of time. Strongly grasping scaly feet. The nest is crowded and nestlings are crawling over and under each other.

Day 11



Key traits:

- Alert, coordinated, holds head up
- Can climb, almost perching
- Defensive behavior
- Femoral no longer bristly bundles



General description:

Movement is deliberate, frequent and well coordinated. Nestlings will hold their head up and observe alertly. Feet are strong and climbing occurs; balance and strength are usually still not sufficient for perching. Legs can still be somewhat pink though toenails have often darkened. Beak is uniformly dark gray contrasting with still present fleshy (yellowish) gape. Vocalizations are strong and clear chirping notes; mouth smacking still occurs. Nestlings will now react defensively to nest intrusion by lifting their wings as if to deflect handling or other sudden stimuli.

Day 12



Key traits:

- Can perch
- Only the femoral and crural tracts look fuzzy
- More complex vocalizations

General Description:

Are able to balance and hold body weight up in a perching position. All feather tracts are still unsheathing, but without closer inspection, the nestling looks fully feathered; upon closer inspection the femoral and crural tracts appear fuzzy. A yellow, fleshy gape is still present. The box is full and the nestlings are moving around frequently. They are fully alert and aware of their surroundings in the box. More complex vocalizations are starting to be heard instead of a single repeated chirp; true singing usually does not occur until day 13.

Days 13 -Fledge



Nests should **not** be checked after day 12. As early as day 14 nestlings will start poking their head out of the nest box or cavity. Disturbance such as opening or approaching the box at this point can cause nestlings to “pre-fledge”. “Pre-fledge” is when nestlings are cued to leave the nest before they are fully able to fly; they are unable to return to the nest and will die. If nestlings are observed looking out of the box it is best to leave the box undisturbed until they fledge. During this process it is best to observe from a far; they are very vocal during this stage and can frequently be heard chirping in the box. If you accidentally approach the box and the nestlings are in this stage, close the box while covering the hole and step away quietly. The fledging process may take several days for all chicks to leave permanently; some chicks will return to the box at night to roost.

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