

# Chicken Lice

## *General Information*

There are many different species of lice that can infest chickens. These include the chicken body louse (*Menacanthus stramineus*), shaft louse (*Menopon gallinae*), fluff louse (*Goniocodes gallinae*), wing louse (*Liperus caponis*), and chicken head louse (*Cuclotogaster heterographus*) (Fig. 1). Of these, the chicken body louse is the best known and probably most common species. All of these lice are permanent ectoparasite of domestic chickens, meaning they complete their entire life cycle on the host. The chicken body louse can reach problematic levels regardless of housing or production type (caged, cage-free, free-range, or backyard poultry). The other listed species are rare or unknown to infest commercial poultry, but have been documented on backyard chickens in a recent survey of backyard poultry in southern California, and past surveys of backyard poultry worldwide.

## *Identification and Life History*

Lice are dorso-ventrally flattened and generally yellowish or brown in color. Chicken body lice, fluff lice, and shaft lice are found primarily on the body (back, breast, vent region) of chickens (Fig. 2). The chicken head louse prefers the crown of the head of chickens, while wing lice are found between the feather barbs on the primary or secondary wing feathers (Fig. 3). Lice lay eggs in white clusters on feathers in the body regions where the adults are found.

Little is known about the life cycles of the shaft, fluff, or chicken head lice, but development is probably similar to the chicken body louse, *M. stramineus*. For the chicken body louse, eggs hatch in 4-5 days, with three immature (nymph) stages each taking 3-4 days between molts to the next life stage. Adult females can lay up to 4 eggs per day, averaging 1-2 eggs per day for the duration of their adult life, about 12 days.

Eggs of the wing louse hatch in 4-7 days, with the entire life cycle taking 18-27 days to complete, a bit longer than other louse species perhaps as a result of cooler temperatures in the wing feathers relative to body feathers. The males have enlarged modified antennae that are used to hold females during mating.

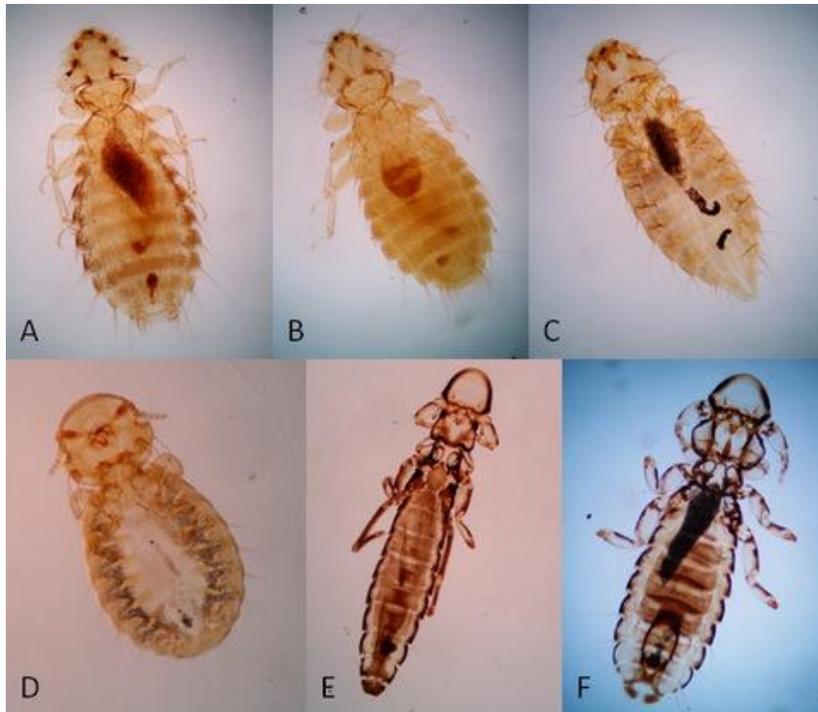


Figure 1. Chicken lice (not to scale) collected in survey of backyard poultry in California. (A) Chicken body louse, *Menacanthus stramineus*; (B) *Menacanthus cornutus*; (C) Shaft louse, *Menopon gallinae*; (D) Fluff louse, *Goniocotes gallinae*; (E) Wing louse, *Lipeurus caponis*; and (F) Chicken head louse, *Cuculotogaster heterographus*. Image by A. Murillo, UC Riverside

### Damage

All lice mentioned feed on feather structures. However, the chicken body louse and shaft louse are also able to feed on host tissue and blood by gnawing on skin or pinfeathers. Lice cause irritation, feather loss and decrease feather insulation, and at high infestations can reduce the egg production of infested birds. These effects are pronounced in young birds.

Lice are generally species specific, and will not readily move between animal species. When louse infestations are high on chickens, lice will occasionally crawl onto human handlers of infested birds, but the lice cannot feed and will not survive on people or in the environment off-host for long.



Figure 2. Chicken body lice on the skin of a chicken. Eggs are laid in clumps on feathers (arrow). Image by B. Mullens, UC Riverside.



Figure 3. Wing lice (arrows) in the primary wing feathers of a chicken. Image by A. Murillo, UC Riverside.

## *Integrated Pest Management*

*Monitoring:* Birds should be manually inspected for lice periodically. The breast, back, vent region, underwings, head, and wings of birds should be examined. The best way to spot wing lice is by holding the wings out and up so that the primary feathers are back-lit (Fig. 3). Also look for clumps of eggs at the base of feathers in addition to active louse populations (Fig. 2). The exact louse species can be approximated by where they are found, though it is especially difficult to distinguish body-dwelling lice without specialized training. Louse numbers can be estimated per bird, but this can be difficult and requires practice, as the lice will be constantly moving as feathers are parted. While lice cause economic damage to birds, it is generally much less severe than infestations of blood-feeding mites (e.g., *Ornithonyssus* or *Dermanyssus*) and no economic thresholds for lice have been determined.

If unable to check all birds in a flock, focus energy on young and old birds, birds that look ill (drooping head, lack of energy) or birds with trimmed or damaged beaks. Populations of the louse are kept in check by host grooming, and birds with trimmed or damaged beaks will harbor higher numbers of lice. Beak intact birds may harbor less than 50 lice per bird compared to hundreds of lice per bird on beak trimmed individuals (Chen et al. 2011).

*Management:* Prevent lice populations from becoming problematic in your flock by thoroughly examining new birds and equipment before bringing them onto your property.

Pyrethrin-based insecticides are commonly available for chemical control of lice in the form of on-animal sprays, pour-ons, or dusts. Always read and follow label instructions. Be aware that multiple applications may be required to control all lice, and some products will not affect eggs. No pyrethrin resistance has been detected to date in lice populations.

Diatomaceous earth (DE) can be used to achieve louse control. A safe and effective way to apply diatomaceous earth is to mix it with sand and allow the birds to dustbathe in the mixture. Mix ~6 cups of **food grade DE** with ~25 lbs (½ bag) washed play sand in a plastic container (swimming pool or concrete mixing bin) (Fig. 4).

It is recommended that a dust mask is worn anytime diatomaceous earth is handled; the fine particles can irritate people, but do not negatively affect chickens. When birds dustbathe in the mixture, the DE gets into the feathers and onto the skin where the lice live, causing the lice to dry out and die. Even if some birds do not dustbathe, the presence of a portion of the flock dustbathing can help manage overall ectoparasite populations.



Figure 4. Plastic concrete mixing bin filled with sand and diatomaceous earth mixture. Birds that dustbathe in the material will decrease lice populations over time. Image by A. Murillo, UC Riverside.

*References for more information*

Chen, B. L., K. L. Haith and B. A. Mullens. 2011. Beak condition drives abundance and grooming-mediated competitive asymmetry in a poultry ectoparasite community. *Parasitol.* 138: 748-757.

Murillo, A., and B. Mullens. 2016. Diversity and Prevalence of Ectoparasites on Backyard Chicken Flocks in California. *Journal of Medical Entomology.* tjb243.

Stockdale, H. J., and E.S. Raun. 1965. Biology of the chicken body louse, *Menacanthus stramineus*. *Annals of the Entomological Society of America.* 58(6), 802-805.

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