Feather Destructive Behavior (FDB), also referred to as Feather Damaging Behavior or Feather Plucking, is a multifaceted behavioral disorder that affects 16-18% of the captive psittacine population. With a prevalence of over 10% of avian veterinary cases, it remains one of the largest medical and husbandry related epidemics in the field of avian medicine. This care guide is intended to operate as a road map to understanding the aetiology, or cause, of your bird’s FDB, as well as the adjustments to individual husbandry that may be necessary to eliminate the root cause of FDB symptoms.

**Step 1:**

**Assess Feather Condition**

You notice that your parrot is missing some of its plumage. Is your bird exhibiting *Feather Destructive Behavior* (FDB)? The first action towards FDB identification and treatment is an informal assessment to determine the extent and timeline of damage, as well as confirmation of its self-inflicted nature. If your bird seems lethargic, unaware of its surroundings, has unusual feces, keeps its eyes closed, or sits fluffed for prolonged periods of time - skip directly to **Step 2** and take them to your nearest avian veterinarian.

**Healthy Feather Loss:**

Feathers are dead keratinized structures. Unlike tissue, which can heal when injured, feathers must be entirely replaced. This is achieved through an annual, and occasionally biannual, seasonal molt in the wild. Molting is a natural process that maintains the health of a bird’s feathers, and it should not be confused with FDB. While a good portion of captive psittacines will not molt as cyclically as they do in the wild, there are several telltale signs that your bird is going into a molt cycle, including: increased
irritability, excessive preening, and an abundance of pinfeathers. While the presence of feathers on an enclosure’s floor may seem worrisome to new caretakers, it’s important to remember that feather loss in itself is a healthy process, and it is merely the obsessive compulsive behavior to pluck that signals deeply concerning medical and/or husbandry issues.

**Damage Type:**

Understanding the method your parrot uses to damage its plumage can assist in uncovering the root cause of its feather destructive behavior. Common methods are described below:

**Over-preening** - When a parrot focuses obsessively on one section of feathers while preening. The feathers will be “over-worked” in this area and often transition slowly from unkempt to bare.

**Plucking** - When a parrot forcefully pulls a feather out. Over a long period of time, the follicles are eventually compromised and new feathers cannot grow back to replace those that were plucked. When a parrot intentionally pulls out a feather, it is painful and endorphins are released into the bloodstream giving the parrot a sense of calm. Endorphins, like drugs, are emotionally addictive, causing an ongoing cycle. This can often lead to bare patches of skin being visible.

**Barbering** - When a parrot chews parts of the feather off, but does not remove the entire shaft. Oftentimes, it looks as if the feathers are broken.

**Rubbing** - When a parrot scrapes the feathers from its head and neck using the bars of its cage, perches or toys.

**Mutilating** - When a parrot picks at their own flesh. Sometimes plucking escalates into mutilation and a parrot will attack the skin once the feathers are removed. There is a constant threat of infection and since the skin of a bird is so thin, healing properly becomes a major issue.

**Self-Infliction:**

A factor to consider if cohabiting parrots is whether or not the FDB is self-inflicted. Over-preening is a common destructive tendency that one bird can perform on its conspecific, and should be distinguished from self-inflicted FDB to determine which bird is in need of treatment, therapy, or husbandry adjustment. Bare patches on the head can indicate conspecific FDB, as individual birds cannot reach the feathers surrounding their own beak.
It should be stated that preening is an essential social behavior that can be performed individually (to maintain skin and feathers) or between birds in a flock to reinforce reciprocal bonds, and that the observation allopreening is not inherently indicative of FDB.

**Timeline:**

The last variable to consider is the length of time your bird has worked on that specific region of the body. Parrots will often target contour feathers first, leaving the fluffy undercoat of semiplume and down feathers intact. After further time, or with greater severity of FDB, the parrot will remove all feathers leaving a bare patch of pink or grey skin. Finally, and most severely, they will attack the skin itself causing redness and discoloration.

**Step 2:**

**Elimination of Medical Factors**

Prior to the establishment of a behavioral disorder, underlying medical causes should be excluded by a licensed avian veterinarian. Medical problems may spawn from behavioral roots, i.e. stress-induced plucking causing traumatic skin disease; but behavior issues may also present as symptoms of a strictly medical aetiology, i.e. feather lice causing irritation causing feather mutilation. For this reason, psittacine FDB is almost always considered multicausal, and multiple therapies or adjustments may be necessary to alleviate the behavior entirely. Unless a caretaker is able to identify an acute environmental trigger with absolute certainty, it is a necessity to visit an avian veterinarian to eliminate any possibility of underlying medical complication.
**Common Criteria Used for Distinction:**

<table>
<thead>
<tr>
<th>Predictors of Medical Root*</th>
<th>Predictors of Behavioral Root*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small Sized Psittacine</td>
<td>Large Sized Psittacine</td>
</tr>
<tr>
<td>Parent-reared</td>
<td>Human Hand-reared</td>
</tr>
<tr>
<td>Under-wing Feather Loss (Pyoderma)</td>
<td>Chest, Upper Wing, &amp; Rump Feather Loss</td>
</tr>
<tr>
<td>Poor Feather Condition in Non-reachable Regions: i.e. Head</td>
<td>Good Feather Condition in Non-reachable Regions: i.e. Head</td>
</tr>
</tbody>
</table>

**Species:** Cockatiel (Giardiasis & Polyomavirus), Macaws (Inflammatory Skin Disease), Amazons (Inflammatory Skin Disease), & Budgerigars

Species: African Grey (Congo & Timneh), Cockatoo (Umbrella & Moluccan), & Eclectus

*Information is generalized as a “Rule of Thumb” and should not be used as a diagnosis in lieu of a veterinary exam

**FDB Causal Flowchart (1):**
Finding an Avian Veterinarian:

Finding a licensed avian veterinarian is of the utmost importance. Whether you’re a responsible owner, a zoological facility, or a rehab/rescue service; we all want the best care possible for our feathered friends. This begins with finding a veterinarian that understands the complexity of the psittacinae family, and the varied species within. If you do not have a primary physician for your bird, the following service can help you locate a qualified licensed veterinarian in your area:

https://www.aav.org/page/findavet/

Unless you are experiencing a time-sensitive emergency, it is okay to be picky about the veterinarian you choose. When researching the doctors and practices in your area, it is important to keep several questions in mind:

1. Are they a member of the AAV (Association of Avian Veterinarians)?
2. Are they familiar with your specific species of psittacine?
3. What is the cost involved? It is important to know that medical bills are expensive, and medical bills for parrots can be even more expensive.
4. Does their clinic do house visits? Birds tend to get stressed when traveling, and for notorious pluckers, it can be worse. It may add to the cost, but it may be better in the long run for the parrot.
5. What are the hours of operation or emergency services? Problems arise and things go wrong at all hours of the day. You want to find someone you trust when making that call.

Recommended Tests:

A reputable veterinarian will start by taking a detailed history of your bird, including: its environment, conspecifics, diet, and medical history. If after a brief physical examination your veterinarian suspects a medical aetiology, there are a few general tests that may highlight the potential medical cause.

**Fecal** - Feces can be evaluated for endoparasites and other potentially harmful microorganisms using diagnostics such as wet mount evaluation, flotation, Gram stain, and cytology.

**Complete Blood Count (CBC)** - Evaluates the quantity and appearance of blood
cells and platelets, and is used to detect evidence of a systemic infection or other inflammatory diseases.

**Biochemistry Profile (CHEM)** - Assesses your bird's organ functions, such as kidney and liver, and other biochemical indicators.

**Chlamydiosis and Psittacosis Test** - Many infected birds appear clinically healthy on visual inspection or on physical examination, but symptoms may include: lack of appetite, weight loss, depression, diarrhea, and discharge from the eyes or nares.

**Radiographs** - If your bird is sick or injured, there is a good chance your veterinarian will recommend survey X-rays to evaluate areas of concern such as the internal organs.

**Viral Screening** - Common viral tests include serology (antibody testing), and Polymerase Chain Reaction (PCR), which looks for minute amounts of viral DNA in the sample. Psittacine Beak and Feather Disease is a serious viral infection found in over 50 species of bird. Infected parrots may take weeks, months or years before showing any clinical signs, often depending on how old the bird is. The first visible clinical sign is necrotic (dead) or abnormally formed feathers. Once signs are seen, most birds die from secondary infections within 6-12 months. The polyomavirus is another disease that belongs to the viral family: Papovavirus. Polyomavirus can cause benign feather lesions in budgies (the so-called French molt or Budgerigar Fledgling disease) or acute death.

**Follicle Biopsy and Culture** - Viral, fungal, bacterial, or yeast infections may be present if there are clinical signs of dermatitis or folliculitis on the skin. This may be primary or secondary to FDB.

**Skin Scrape** - Used to confirm the presence of mites and other ectoparasites.

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**Step 3:**

**Determination of Husbandry Factors**

Once underlying medical concerns are addressed, all husbandry-related factors should be assessed. Diet should be evaluated and eliminated as the root cause of skin or feather disease. Risk factors should be weighed to determine which branches of the **FDB Causal Flowchart** are primarily responsible for the stereotypy. The timeline of behavior is very important in order to pinpoint any environmental changes that may have triggered FDB, for example: immediately following a vacation. Behavioral aetiology is likely
multifaceted, and multiple socio-environmental adjustments should be considered in treatment.

**Understanding Behavioral Risk Factors:**

<table>
<thead>
<tr>
<th>Low Risk Group</th>
<th>Medium Risk Group</th>
<th>High Risk Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;1 Vacation per Year</td>
<td>1 Training Session Daily</td>
<td>≥1 Vacation per Year</td>
</tr>
<tr>
<td>&gt;1 Training Session Daily</td>
<td>8-10 Hours of Sleep Daily</td>
<td>&lt;1 Training Session Daily</td>
</tr>
<tr>
<td>&gt;10 Hours of Sleep Daily</td>
<td>Adolescent Age Group</td>
<td>&lt;8 Hours of Sleep Daily</td>
</tr>
<tr>
<td>Juvenile Age Group</td>
<td>1-3 Hours of Socialization Daily</td>
<td>Adult Age Group</td>
</tr>
<tr>
<td>≥4 Hours of Socialization Daily</td>
<td>Living with Other Birds</td>
<td>&lt;1 Hour of Socialization Daily</td>
</tr>
<tr>
<td>≥8 Hours Out of Cage Daily</td>
<td>Male Sex Group</td>
<td>Always Caged</td>
</tr>
<tr>
<td><strong>Species:</strong> Conures, Parakeets, Eclectus, Cockatiels, Quaker, Amazons, &amp; Caiques</td>
<td><strong>Species:</strong> Cockatoo (Sulphur-crested &amp; Leadbeater’s), Lovebird</td>
<td><strong>Species:</strong> African Grey (Congo &amp; Timneh), Cockatoo (Umbrella &amp; Moluccan)</td>
</tr>
</tbody>
</table>

**FDB Causal Flowchart (2):**

Causes of Feather Destructive Behavior (FDB)

Intrinsic Aetiology

- Physical Disorders
- Psychological Disorders

Extrinsic Aetiology

- Husbandry
- Infectious Agents
**Poor Nutrition:**

Poor nutrition is a common reason for many health concerns, and is estimated to be the cause of 60-70% of medical problems in companion parrots. Malnutrition is also the primary medical cause of self-inflicted feather damaging behavior, typically outweighing other underlying issues. Nutritional deficiencies can cause abnormal skin development around the feather shaft. Inappropriate diets can also cause gastroparesis and chest pain. Both of these conditions lead to tissue irritation and consequential plucking behavior.
Social Frustration:

Plucking issues stem from maladaptive behaviors, such as over-preening in response to stress or pain. Preening in itself is a beneficial behavior to keep a bird’s plumage healthy and neat, but when introduced to social or environmental stressors, preening can become a method of self-soothing that becomes increasingly obsessive with greater levels of anxiety. One of the primary sources of stress for psittacines is divergence from their social expectations. In the wild, most parrots live in large flocks and mate monogamously with other parrots they bond with. When a parrot is brought into the captive setting they will form bonds with their human caretakers. This is especially true for birds that were hand-reared by humans, as parental imprinting during the fledgling period lays the foundation for social expectations. When bonded, a parrot will display many signs of fondness towards their person or people; however, there is one factor of bonding that often escapes our minds, and that is that parrots think about sex a lot. Unfamiliar, but well-meaning caretakers may attempt to show affection by touching or petting areas on their bird other than the head, but this action will be interpreted by the parrot as pre-breeding foreplay. When copulation is not fulfilled, the bird may become sexually frustrated, and resort to maladapted behaviors such as biting, screaming, and plucking to alleviate stress. Wild parrots are seasonal breeders, and while keeping our birds healthy and happy may seem like an inherent positive: excess food, longer photoperiods, and cozy snuggle toys (nesting cavities), all contribute to the rise of sex-related hormones and therefore hormonal behaviors. Many captive birds, due to the bountiful nature of captivity, are stuck in a perpetual state of breeding desire.

Following the diagram, we can see that most areas on a bird’s body will stimulate hormonal breeding behaviors when touched. It is crucial when showing affection for our feathered friends to avoid affectionately rubbing or touching any area labeled in red. The head and feet are generally considered safe zones, depending on the individual.

While sexual frustration is perhaps the biggest factor contributing to social stress, there are other social scenarios where plucking might occur as well. If a parrot is not given an appropriate amount of interaction from either their human or conspecific in a given day, it can be detrimental to their mental health. Sudden changes in the family hierarchy can also trigger social stress, such as a member being absent for prolonged periods of time. Ultimately, birds crave a consistent and predictable social environment, and any deviation from their expectations can cause frustration.
Setting your psittacine up for social success may involve establishing boundaries and expectations with its primary caretakers. When a human hand-reared parrot is adopted into a single bird house where the bird’s sole social interactions involve shoulder-riding, petting, and cradling; we set up a strong social expectation that the bird and human are bonded members of the same flock. The reason that this is not positive in most cases, is because we can not fulfill the expectations our bird has, mainly that we will be spending all of our time in their direct vicinity. Common human aspects of life, such as leaving for work can be seen as desertion when we set these expectations. More appropriate expectations revolve around establishing a separation between the bird and their caretaker through parallel independent activities and non-sexual positive interactions.

*Environmental Stressors:*

Parrots are very sensitive to their environments, and behavioral problems may arise out of improper environmental stimuli. It’s imperative when considering the onset of your parrot's stress to create a proper timeline in order to isolate the exact cause. Over the course of a five year study at a veterinary clinic, nearly half of the caretakers of African Grey Parrots (*Psittacus erithacus*) who exhibited FDB could pinpoint a specific incident that triggered their plucking. Each individual parrot will have a unique personality that may be more or less susceptible to environmental stress. Most individuals, when raised in highly enriching environments, will not react negatively to novel stimuli in the same way that others would.

Important environmental questions an avian veterinarian or behavior consultant will ask about include, but are not limited to:

- **Enclosure**
  - Is the cage in a new location?
  - Is it a new cage?
  - Is it in a high-low traffic area?
  - Is it next to a window or door?
  - Is it close to a kitchen?
  - How often is the cage cleaned?
  - What chemicals are used?
  - Do the toys simulate natural species-specific behaviors?
  - Do they have opportunities to forage?
  - Was their diet changed?

- **Accessories**
  - Did a cage accessory get moved?
  - Is there a variety of perching options?
  - Is there a variety of toys, and are they changed on a schedule?
  - Are there toys that may be hazardous: i.e. cotton products that parrots may ingest, toys they can get caught in, or toys made with harmful chemicals?
  - Are there any birds of prey visible outside a window?

- **Proximity to Predators**
  - Is there a household dog or cat?
  - Are there noises audible from more exotic predators in a zoological setting?

- **Social Environment**
  - Is there another bird in the room?
  - Are they bonded?
  - Are there any new caretakers or personnel?
Is anyone on vacation or absent from the parrot's environment?
Are all interactions positive?
Do any of the individuals interacting with the parrot carry large new stimuli into the environment: i.e. large hats, purses, glasses?
Have any caretakers changed their appearance?

- **External Environment**
  - Are there any new auditory stimuli?

**Environmental Enrichment:**

In the wild, African grey parrots only preen for about 60 seconds every hour before they must leave to forage or are displaced by another bird. They simply do not have the abundance of time required to over-preen as captive birds do. In captivity, without proper enrichment and training, parrots are likely to over-preen due to boredom. Giving your psittacine appropriate outlets to redirect their attention through behavioral goal-based enrichment is imperative to both prevent and treat FDB. While you may have an adequate amount of enrichment in their enclosure, you may not have the complexity or variety of enrichment that your bird needs to maintain optimal mental welfare.

**Step 4:**

**Treatment & Adjustment**

FDB is found almost exclusively in captive psittacines (note: wild mortality may confound this), which indicates that the disorder is a reflection of the environment they live in. FDB can be prevented and reversed if an effort is made to provide the appropriate adjustments to their environment and routine. Occasionally, a caretaker will isolate and eliminate all of the root causes of their bird's FDB, but the bird will continue to pluck. This is due to the formation of a compulsive or addictive habit that can maintain the behavior for years. Most cases of FDB in psittacines have more than one cause, and no single treatment is likely to solve all maladaptive behavior. For this reason, therapy and adjustments should be made at every level of care from diet and enrichment to socialization.

**Veterinary Intervention:**

The first step towards treatment of FDB is to listen to the test results and recommendations of your local avian veterinarian. Depending on the diagnosis, medical intervention may be the primary treatment, but often veterinary intervention will only be the starting point for greater husbandry adjustments yet to come.
Due to the social intelligence and complexity of psittacines, much like humans, they are at risk to particular personality disorders that are innate and oftentimes hereditary. Medications that treat depression, obsessive compulsive disorder, and other impulse control disorders in humans have had statistically significant results in the elimination of feather destructive behavior in captive psittacines. Due to each bird’s unique personality and disposition towards certain coping mechanisms, your veterinarian may recommend medication to help manage your bird’s mental health, just as they would to a human.

**Collars:**

*a quick note on the use of e-collars to prevent plucking*

Mechanical prevention of plucking is a band-aid solution that may be appropriate to curve skin mutilation while veterinary treatment begins, but is **not** an appropriate long-term solution to curve FDB.

**Dietary Adjustment:**

We recommend following the Psittacine Welfare Institute’s *Diet & Nutrition* Care Guide to find a species-specific diet, as the diversity of the psittacine order prevents generalization. We advise against free-choice seed mixes, as parrots will select out the unhealthy components, and even well-balanced mixes will inevitably cause deficiencies. We recommend using a formulated diet, which contains the same ingredients, but blended together and baked to avoid preferential selection. Many avid aviculturists advise towards a primarily fresh diet, with less than 25% formulated pellets, but peer-reviewed studies have shown that these diets have adverse effects on parrot health, including deficiencies in calcium, sodium, and iron. Even a well-formulated diet can become detrimental if too much food is offered. Enrichment items and puzzle feeders should be utilized to increase the level of difficulty in obtaining the food, especially if providing free-choice. Creating engaging and time-intensive foraging opportunities is one of the greatest tools in our belt to deal with behavioral FDB.

**Environmental Changes:**

If, like many caretakers, you can trace their FDB back to a single incident of environmental change, then the next step is to simply remove the change. If removal is impossible, increasing the distance from your parrot or reducing the amount of noise or movement the piece exhibits may help them cope more easily. The principal method used to prevent unnecessary stress on a parrot is to introduce any change slowly. The longer something is introduced, the more time a parrot has to adjust as it needs. This
process applies to diet, enrichment, furniture (both in the cage and the room), new pets, new auditory stimuli, and other factors that are listed above. Ensuring that a parrot has the appropriate time and is exposed to novel stimuli in small batches can help reduce their stress and potentially stop future issues.

**Adding Environmental Enrichment:**

In the wild, a parrot’s environment is in a constant state of change. When parrots are brought into human care, it is important to continue to simulate this environment to the best of our abilities. This way, the parrot is still allowed to exhibit natural behaviors. One of the best ways to promote these is by providing a schedule of constantly rotating environmental enrichment. Enrichment can come in many forms, and bring out many different behaviors, but arguably the most important is foraging. Parrots spend a substantial amount of their time in the wild searching and working for food. Despite this, free bowl feeding is still one of the most prevalent forms of providing food in captivity. Creating obstacles and problem solving instances by hiding high reward treats in toys, boxes, and other destructible items can encourage the parrot to work for its food as it would in its natural habitat. If homemade toys are not your forte, there are many different types of puzzle feeders found online. See the Psittacine Welfare Institute’s *Enrichment Catalog* for more ideas.

Enrichment should be goal-based, with successes and failures being recorded for future adjustment. Personality and speciation will alter each bird’s interest in particular behaviors, so knowledge of their natural history is invaluable in planning behavior goals. For example, African greys naturally dig, so providing them with faux grass, boxes, or carpet squares gives them the opportunity to elicit nature behaviors. Catering enrichment towards the individual species will assist in providing them with the mental stimulation needed to prevent FDB. All enrichment added to an environment should be assessed to ensure that the parrots cannot consume any non-edible material or endanger themselves through entanglement. Each new enrichment item should also be introduced within the parrot’s comfort level. If your bird is a slow adjuster, giving them smaller versions of the enrichment may help them gain confidence before introducing larger versions.

**Increasing Socialization:**

Each singular African grey parrot can recognize up to 15 other African grey parrot individuals. As flock animals, parrots need social interaction to thrive. If a parrot cohabitates with other birds, this need is met. However, in many private home settings, there is not always opportunity for social interaction with conspecifics. Ultimately, it is crucial concerning the bird’s mental state for those who live in the home to spend a great deal of time with their bird. Feather plucking decreased by nearly 90% in birds that regularly interacted with people at least 4 hours a day. “Interaction” can be as simple as spending time in the same room where the bird is located or bringing the bird to a perch near you. It also can be, and often must be, much more involved.

One form of socialization is consistently training your parrot. Using positive reinforcement training techniques, a parrot’s welfare can drastically improve by offering them the
opportunity to bond with their caretakers, participate in their own care, and make choices in their environment. There are multiple reasons this could lead to an improved life for your feathered friend. Training builds trust between parrot and caretaker. Trust-based relationships reduce the stress involved in common medical practices, such as physically assessing body condition, trimming nails or wings, obtaining weight, monitoring feather quality, and even more complex behaviors like blood draws.

In addition to helping to monitor physical health, training also stimulates the mind and improves mental health by allowing parrots to make choices in their environment. African grey parrot intelligence is comparable to a five year-old human, while their emotional development is closer to that of a two to three year-old child. Like children, it is crucial to encourage that development. Increasing the duration and frequency of daily training sessions can help prevent or redirect undesired behaviors such as FDB. However, it is important to slowly build up to more advanced behaviors, otherwise you risk frustration and regression.
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