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Unusual feeding observations of the California condor in the wild

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Atypical, non-digestible items consumed by the California condor (*Gymnogyps californianus*) are well documented (Collins et al. 2000; Houston et al. 2007; Mee et al. 2007). Termed 'micro-trash', previous papers have suggested that metal, plastic, and glass artifacts consumed by condors might be mistaken for bone materials consumed as a source of calcium, might be ingested to assist in pellet formation, or may represent exploratory quests for novel food items (Collins et al. 2000; Houston et al. 2007). It is currently unknown if this behavior is an attempt to consume additional calcium, to take what is perceived as needed bone fragments back to developing nestlings, or some other explanation. It is, however, known that micro-trash ingestion was the primary cause of nest failure in the reintroduced condor population from 2001 to 2005 and continues to threaten the reestablishment of a viable breeding population in southern California (Mee et al. 2007). In fact, micro-trash ingestion by condor chicks was found to be the leading cause of death for wild condor nestlings (Rideout et al. 2012). Between 2002 and 2005, of nine nestlings hatched in the wild, six died and two more were removed from the wild for health reasons. Most of this group were found to have consumed substantial quantities of non-digestible items. Micro-trash items have been recovered from birds post-mortem or discovered in and around nest sites, presumably regurgitated by the adult during the feeding of chicks.

Due to these feeding peculiarities, and the lethal outcome that can result, we believe field observations on condor feeding habits, no matter how brief, are noteworthy. Empirical observations of condors feeding in the wild are rare and anecdotal information on birds ingesting non-digestible items can have important management implications.

On 24 May 2018 at 1400, we observed 13 juvenile and adult California condors in a closed turnout on Templin Highway, 0.77 miles east of Interstate 5 in Southern California (N 34 34'17.85, W 118 40'33.38). Condors were observed for 30 minutes and remained at the turnout when biologists left. Several birds were perched on the outer guardrail, while others were standing in the turnout. All condors observed were tagged and appeared in good health.

Tag colors and tag numbers were as follows: Red 56, Red 61, Green 91, Green 32, Green 72, Green 30, Green 40, Green 96, Purple 48, Maroon 7, Blue 74, Yellow 47, and White 87.

During our initial observation, it appeared that the birds were simply resting in the turnout. We then noticed that the group were focused on two full plastic sandbags laying on the ground. Adult and juvenile birds would approach the bags and tug at them, in what appeared to be an attempt to rip open the plastic. Several condors were perched on the guardrail tugging at a third bag that had been placed in a 5-gallon bucket outside the turnout area. During our observation, birds were attempting to tug the bag out of the bucket as well as lift the bucket by the handle. Additionally, these bags appeared to be the focus of competition. Larger, older birds would frequently chase juvenile birds away from the bags during this encounter.

Twice we witnessed 2 different condors tugging on the woven, plastic bags and ingesting the strands of polypropylene material that made up the bag. Once the birds gained access to the contents, they began to actively manipulate the fine sand inside and appeared to ingest small quantities of the material. Eight of the thirteen condors observed stuck their heads inside the open bags to access the contents. Once small openings were torn in the bag, several birds were seen picking at and consuming the sand inside the bag. Digital photos and video were taken to document the observation.

One of the bags was collected when the birds moved away from it. The generic bag was made of woven polypropylene and filled with a fine grain cement sand. Bags of these types are frequently used to stem erosion or assist in channeling flood waters off roadways. These bags are constructed of treated plastic strips that are woven into sack-shaped bags with one open end. A long, thick strip of plastic is attached to the open end and is used to tie the bag closed after filling. The recovered bag measured 65 cm X 35.5 cm and appeared to be the standard sandbag used for various emergency flood events and erosion control.

Publications consistently state that condors are curious and intelligent (Collins et al. 2000; Houston et al. 2007; Mee et al. 2007). Empirical data made by researchers suggests that they frequently find food by investigating their environment, and this behavior does appear to fit what we observed. Interacting with human-made materials is also consistent with previously described condor behavior. However, the actual consumption of the materials in question could also suggest that they mistook the sandbags for a food source, or that they were attempting to access minerals that may have been present in the sand fill used in filling sandbags (Collins et al. 2000; Houston et al. 2007). These suggested interpretations of the observed behavior are purely speculative.

Although there is a body of published work documenting the consumption of micro-trash by condors, we did not find any information that would lead us to a firm conclusion of why this group collectively interacted with and ingested the sand. While many studies speculate on why condors consume non-digestible items (mineral deficiency, pellet formation or exploring novel food items), these inferences do not fit the behavior we observed. Given the described observation and current research information, we can only speculate why condors were observed picking at the sandbags and consuming the sand inside. It is unknown what negative effects, if any, consuming polypropylene strips from the bag or the sand would have on adult condors, or eventually their young if fed to fledglings. However, noting the lethal impacts of micro-trash on young fed non-digestible items by the adults, minimizing any foreign objects from the diet of the adults and chicks would be beneficial.

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