UNITED STATES GOVERNMENT

MEMORANDUM

U.S. FISH & WILDLIFE SERVICE

DATE: April 4, 1995

COPY

TO: Refuges, South Dakota

FROM: Area Biologist, South Dakota

SUBJECT: American Burying Beetle Meeting

A meeting organized by Doug Backlund, Resource Biologist with the South Dakota Natural Heritage program was held on March 24 on the SDSU campus in Brookings. A group of interested individuals from federal and state agencies, universities, non-governmental organizations and private individuals attended.

The focus of discussion was the planning of monitoring efforts during 1995. Although refuge staff have not been asked to participate in the formal monitoring protocol, there is the potential to assist with this effort without expending or committing to any measurable amount of refuge staff time. I have included some meeting notes which summarize what was discussed and how refuge personnel may possibly be able to assist with the monitoring efforts.

Highlights

During 1994, a specimen of the American Burying Beetle (ABB) was collected just one mile south of Gregory Co., South Dakota in Jameson, Nebraska. It was collected by a member of a local 4H club. The beetle was discovered in her insect collection at the state fair. She found it on a road killed mammal. Other ABB specimens in the vicinity of South Dakota have been collected at Valentine NWR. There are only a handful of historic collections in South Dakota, mostly from the southeast portion of the state.

Doug Backlund surveyed refuges in the southern part of the state last year. Many species of burying beetle were found, but the American Burying Beetle was not one of them. Doug will be conducting more surveys this year in Gregory Co.

There are currently three known populations of ABB. They are Block Island, Rhode Island; Oklahoma/Arkansas; and Nebraska. The Block Island population occurs in brush and grass areas with glacial till soils, whereas the Oklahoma/Arkansas population shows a preference for mature forests and deep soils. No word on the Nebraska population. Several reintroduction have occurred on coastal New England islands.

Nebraska has received $30,000 and South Dakota has $3500 in Section 6 monies to spend on recovery and monitoring efforts.

Nebraska is looking at captive rearing and releasing the beetles. There is, however, a symbiotic mite which disappears from the beetle within two generations in captivity. Although not critical to the beetle's survival, the mite does appear to positively influence their reproductive success.

Additional information from the national recovery meeting mentioned that the population on Block Island, Rhode Island is doing well. It appears that juvenile pheasant carcasses are the preferred food item, and they are found in abundance on the island.

This group anticipates an additional 2-3 years of survey. If no beetles are found, they plan to release beetles at various sites within the state. One of the potential sites mentioned was refuge lands.

Surveys

Surveys this coming year will occur mostly on public lands. The preferred survey method is outlined in *Creighton, J.C., et al. 1993. Survey methods for the American Burying Beetle (Nicrophorus americanus) in Oklahoma and Arkansas. Oklahoma Biological Survey.* Standards specific to South Dakota are being developed by this working group. They will also provide instructions and standardized data sheets.

The method outlined by Creighton is somewhat time consumptive. Non-lethal pitfall trap arrays are located along a series of line transects. The trap array involves burying a container along with dead animals or animal parts as bait and then revisiting the arrays for several consecutive days to detect the presence of ABB.

Refuge Involvement

I discussed with the group that as a whole, current demands on refuge staff would most likely preclude our

involvement in running a trapline. I did ask the group if they felt it would be valuable to their overall effort to document the presence of ABB in South Dakota if refuge staff would be willing to flip over dead animals during their travels to look for these beetles. The group agreed that if refuges could conduct these "kick and count" surveys, it would greatly enhance their efforts to document the presence of ABB in South Dakota.

Conducting kick and count surveys is strictly voluntary. If refuge staff are willing, the results of the effort will be acceptable and appreciated by the group.

Interest in other burying beetle species

The group also expressed interest and concern for other burying beetle species. There is limited information on this particular group of insects. Paul Johnson curates the insect collection at SDSU and has volunteered his assistance with the identification and curating of any species of burying beetle which refuge staff will send to him. Gary Marrone has also volunteered to assist with this effort. As an added note, Gary has a keen interest in butterflies and is interested in information on them as well. If you are interested in working on butterflies, I encourage you to contact Gary directly.

To assist refuges with this effort, the group has offered the following:

- will develop a burying beetle species field guide for our use in tentative identification of species common in South Dakota.
- will voucher any specimens sent to them.
- specimens will be put in permanent collection at SDSU.

From my end, I can and will provide the following for any refuge or district which is interested in the kick and count method of looking for ABB, as well as other burying beetle species:

- the attached protocol for the "kick and count" collection method.
- provide collection vials, if needed, for the handling of specimens.
- field assistance, as requested by refuge staff, to look for the bugs on FWS lands.

There are several reasons I feel that this effort is worthwhile. First and foremost, this species is federally listed as an endangered species, and as such is a species the Service is mandated to protect.

Second, the beetle working group feels that there is a high probability that the beetle exists within the state. Third, there is scientific interest in general about burying beetles. Ecologically, they are an important component in prairie ecology. They incorporate nutrients into the soil as well as serving as a soil disturbance mechanism. Lastly, this is an opportunity to cooperate and get involved with a survey which adds to our collective knowledge of prairie ecology; gets us outdoors; is voluntary in nature; and could possibly be fun (based on your idea of fun).

Attached to these meeting notes, I have included the attendance list for the meeting, wanted posters for the ABB, and a protocol for the "kick and count method". Let me know if you are planning to participate and I will place a consolidated order for vials, etc. When the local field guide is developed, I will send this to you. If you are interested, I will also pass along the standardized methodology which the group is using. Let me know if I can be of further assistance.

Happy bugging!

Persons Attending American Burying Beetle Meeting, March 24, 1995, Brookings, SD

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Received
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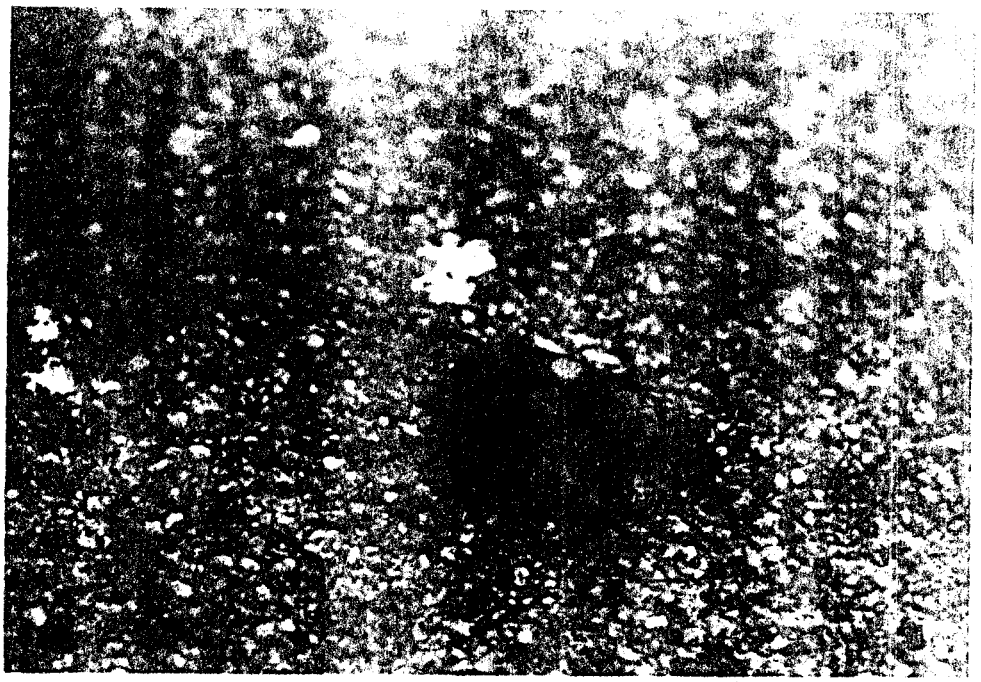
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W A N T E D

Information leading to the finding of the
American burying beetle (Nicrophorus americanus)



Distinguishable by its large size (1-1.4 inches), this beetle is also identifiable by a large orange-red pronotal disk. Historical locations for this beetle include Brookings, Union, and Haakon counties. The key to locating this species is its attraction to carrion. The best time to find this species is June-August.

PLEASE CONTACT The U.S. Fish & Wildlife Service
420 S. Garfield, Suite 400
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CALL 605/224-8693

Pelizza, Charles A. 1995. **KICK AND COUNT METHOD OF SURVEYING FOR BURYING BEETLES**. U .S. Fish and Wildlife Service, Lake Andes National Wildlife Refuge. R.R. 1. Box 77, Lake Andes, South Dakota 57356. (605)487-7603, fax (605)487-7604, cc:mail: 6DE-MAIN PelizzaC. 4/03/95

Background

Burying beetles of the Nicrophorinae subfamily (family Silphidae) are noted for their habit of burying vertebrate carcasses for reproductive purposes and for their parental care. The American Burying Beetle is the largest of the group, averaging around 25-35 mm (@ 1"). It is easily distinguished from other species of burying beetles by the bright orange raised pronotum (see attached figure).

The America Burying Beetle is primarily nocturnal. It is most active during June through August, although it has been found between April and October. The species overwinters as an adult. It is a habitat generalist, being found in grasslands, shrubs and forests. There generally needs to be a detrital layer. Sandy and saturated soils are not suitable for the species. Historically, it was widely distributed throughout temperate North America, ranging from southern Canada to Texas and New England to Nebraska. It is currently known from three sites: Block Island, Rhode Island; Oklahoma; and Nebraska. It is suspected as being present in South Dakota.

Reasons for the species decline are unclear. However, several clues about historical environmental conditions suggest areas where the species may more likely be found. An abundance of carrion items is necessary for the species. Passenger Pigeons and Greater Prairie Chickens are suspected to have been preferred food items. Habitat fragmentation has led to increased competition from other carrion eaters. Raccoon, skunk, etc. now probably compete with the American Burying Beetle for a more limited carcass supply. Optimum weight of food items is between 100 and 200 grams, roughly the size of a rat or juvenile pheasant. Carcass burial generally occurs during the first night that adult American Burying Beetles are present on the carcass. Adults not actively caring for young will feed on larger items, but will generally not be found on the carcass during the day. Early morning and late evening may prove more productive in looking for beetles.

Potential sites which may be worth looking at are river stream corridors, and locations with a high

density of smelly carrion (e.g. heron colonies, turkey farms, roadside ditches).

Methodology

Random checks of carcasses of optimum size will be searched for the presence of American Burying Beetles whenever they are encountered. Searches are conducted whenever the observer has the time and ambition to rummage through the carcass

The Kick

As a suitable carcass is encountered, the carcass is carefully examined for any and all carrion beetles. Care should be taken to be quick, but thorough since American Burying Beetles and other species are capable of flight. Latex gloves should always be worn when examining carcasses to reduce the potential for disease transmission. If necessary, a stick can be used to turn over the carcass. Careful examination should be made of exposed and unexposed surfaces of the carcass. Dissection is not necessary, but the search should be thorough enough to find any and all beetles.

The Count

If an American Beetle is found, it should be detained in a clean jar only as long as it takes to photographically record the occurrence. After the specimen has been recorded, it should be released. A collection permit will not be needed for this technique. If contact is made with an American Burying Beetle, you should contact Nell McPhillips as soon as possible.

If other burying beetles are found, a representative sample of the species can be collected and stored in vials (glass jars, film cases). These vials should be labeled, catalogued and frozen for later identification. Once several samples are collected, they can be sent to either Paul Johnson or Gary Marrone for identification. If you are comfortable with the identification and already have numerous examples of the species, it will no longer be necessary to collect the species. Rather, its occurrence should be catalogued and the specimen released. A field data sheet is attached. All encounters, whether a specimen is collected or not, should be recorded.

Equipment Needs

Latex examining gloves
camera and film
clear retaining jar with perforated lid
specimen vials
labels
data log

Data Records

Vials

All data should be recorded in pencil. Collected specimens should be placed in individual vials. Multiple specimens of an individual species may be placed in the same vial, provided they were collected on the same day and from the same carcass. An example of a sample label for a vial is attached. Vial label should be placed inside the vial. It will contain the following information: Specimen # (assigned by field station), date, observer name, tentative species identification (a "?" may be all that you can do) and its location.

Data Log

A log of all encounters with burying beetles, whether collected or not, should be maintained. The log will chronologically list all beetles encountered. Data to be recorded for each specimen collected will be:

Record #: (year-three digit station code-inventory #)
Date:
Location: (township, range)(section is optional for all except the American Burying Beetle)
Collected: (yes or no depending)
Species ID: (tentative, pending voucher from Paul/Greg)
Habitat: (optional, except for American Burying Beetle. Should include carcass type and vegetative component description)
Collectors Name:

The record number will link collected specimens with the data log so that all information is located in one place.

Data Storage

All labeled specimens will be sent to either Paul Johnson or Gary Marrone. The data log will also be sent with the specimens. An original hard copy of the data log will be maintained by the field office. An additional copy will be sent to the Area Biologist-

South Dakota and be maintained at that office. An information copy may be sent to Nell McPhillips, ES-Pierre.

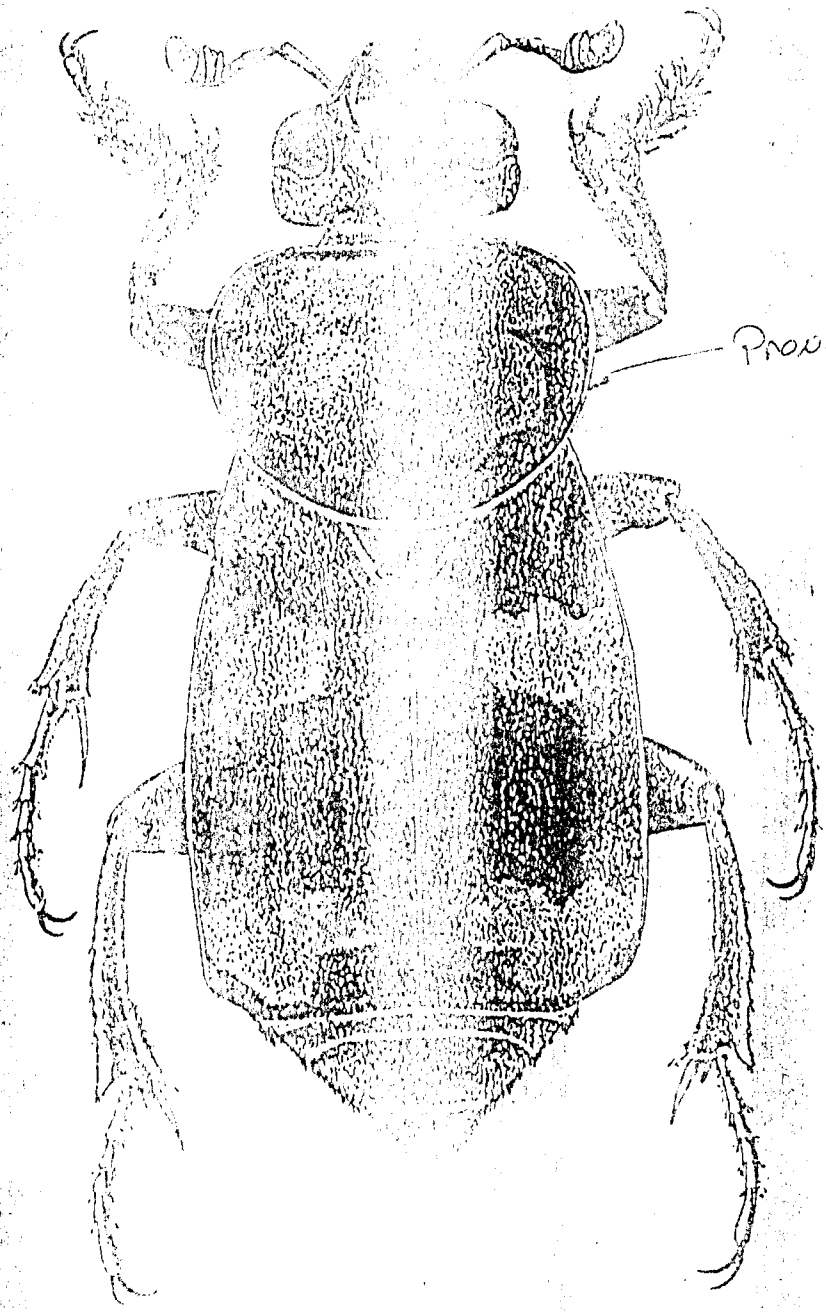
Acknowledgements

I would like to thank the group of individuals who met on March 24 in Brookings to discuss American Burying Beetles. Their motivation and inspiration will hopefully be rewarded with the participation in this survey by refuge staff throughout South Dakota.

References

U.S. Fish and Wildlife Service. 1991. American Burying Beetle (Nicrophorus americanus)Recovery Plan. Newton Corner, Massachusetts. 80.pp.

Personal conversation, American Burying Beetle Meeting Attendees, et. al. 3/24/95. Brookings, SD



actual size
25-35 mm

Figure 1. American burying beetle (Nicrophorus americanus).

Illustration by Mark Marcuson. Used by permission of the University of Nebraska State Museum.

BURYING BEETLE DATA LOG

Record#	Date	Locations	Collect	Species ID	Qty	Habitat	Collectors N

BURYING BEETLE DATA LOG

Record#	Date	Locations	Collect	Species ID	Qty	Habitat	Collectors
95-LAN-001	4/1/95		Y	Nicrophorus sp.	1	Brush	CA. Pelizza
95-LAN-002	4/1/95		Y	Nicrophorus sp.	1	Brush	CA. Pelizza
95-LAN-003	4/5/95		N	Nicrophorus sp	3	Grass/road	J. Peterson

EXAMPLE

Vial Label Example

