

THE IOWA BREEDING BIRD ATLAS PROJECT

The Iowa Ornithologists' Union and the Iowa Conservation Commission have begun a project to map the breeding distribution of all the species of birds that nest within the state. Here are some of the important questions that the Atlas will help answer: What birds nest within the state of Iowa, and what are their breeding ranges? A systematic field study to answer these questions has never been attempted; as a result the breeding ranges of many birds in Iowa remain poorly known. It is also likely that there are species whose nesting in the state remains to be discovered; many eastern states have added species to their breeding avifauna as a result of similar projects. What areas or habitats are crucial to rare, local, or endangered species in Iowa? Information from the Atlas will be valuable to environmental planners in their efforts to protect such species. How is the distribution of Iowa birds changing with time? The Atlas will provide a baseline against which to monitor future environmental changes. Birds, because of their visibility and dependence on natural habitats, are among the most sensitive indicators of such changes. Natural populations are always changing with time, so an Atlas needs to be completed within a relatively narrow interval if the results are to be of value. We have chosen five years as a compromise between the need to compile extensive data and the need to complete the Atlas in a short span of time.

Atlas projects such as this one are going on in many states of the U.S. and in many countries around the world. Iowa's Atlas is part of a global effort to improve our knowledge of bird distribution. In the Iowa Atlas we will be using methods that have become standard in North America. Participation in it should provide not only an enjoyable field experience but also a valuable contribution to science.

Scope of the Atlas

The purpose of the Atlas is to provide an objective description, in the form of maps, of the breeding ranges of Iowa birds. Such a project has three parts:

1. Division of the state into sampling units
2. Survey of the breeding birds on some or all of the sampling units.
3. Conversion of the data into a set of maps.

Creation of Sampling Units.

To avoid bias and ensure even coverage of the state we have divided Iowa into blocks 3x3 miles in size. These "sampling blocks" are large enough to contain a variety of habitats, yet are small enough to be covered adequately. They are comparable in size to the blocks used in other atlas projects and take advantage of the boundaries created by Iowa roads.

To map breeding ranges in the required detail a large number of blocks must be surveyed. We will attempt to survey one block in every other legal township, a total of about 800 blocks in all. Townships chosen have either an even township number & even range number or an odd township number & odd range number. The sampling blocks chosen cover the state in a checkerboard fashion. To ensure that this selection procedure missed no unique natural habitats, we have also chosen nearly two hundred "wild card" blocks, to include significant protected natural areas such as state and county parks, Conservation Commission-owned areas, and National Wildlife Refuges. Nearly one thousand blocks will be surveyed in all.

Surveying Methods.

What information is recorded? Two things need to be determined for each sampling block: First, which species nest within the block, and second, the evidence that each of these species nests there. A standard set of criteria and recording codes will be used. Each species will be listed either as observed (no evidence of nesting), or as a possible, probable, or confirmed nester. Definitions of categories, code symbols, and examples of their use are given in Appendix A.

After choosing a block to survey, you may wish to go over your block to determine the habitats contained in it and the species of birds likely to be present, and familiarize yourself with their field marks, songs and calls, and nesting habits. A list of all species that regularly nest in Iowa and brief descriptions of their nesting habitats and nesting periods are provided in Appendix B.

How completely must each block be covered? Even the most persistent observer is unlikely to find every nesting species in a block, no matter how long the search. The problem, then, is knowing when to quit. Most blocks in Iowa will contain 50-100 nesting species. Experience in other state atlas projects has shown that recording 75% of the species on a block is a reasonable goal. Likewise, experience has shown that few new species turn up after a total of 20-25 hours has been spent searching. Thus a reasonable 'rule of thumb' is to consider a block finished when 75 species have been recorded, or when a total of 25 hours has been spent surveying it.

Whatever the number of species on a block, all will not fall into the confirmed-nester category. As a general guideline, try to get 25% of your species as 'possibles', 50% as 'probables', and 25% as 'confirmed nesters'. Rare and local species are the most important for the atlas, so concentrate your efforts on them; you will probably confirm most of the abundant local breeders with little effort. Remember, the atlas project lasts five years, and breeding status of a species needs to be confirmed only once in a given block during that time.

When should surveys be conducted? Atlassing is not strictly a summertime effort. Scout your block(s) before the breeding season, to familiarize yourself with the habitats present. This will help you decide which species can be expected during the breeding season. Perhaps you will want to do some 'homework' on field marks, songs, or calls of these. Hawk and owl nests are most likely to be found from February through April. This is also a good time to contact local landowners. The majority of time afield (20 or more of your total hours) should be spent from mid-June to early August. June is the best month for building a species list for your block, since most species will be on territory and actively singing, and most migrants will have gone, minimizing the chances of finding non-resident species. Late June and July are the prime times for finding evidence of breeding, such as nest construction, carrying of food for fledglings, and the presence of young birds. A few species, such as the Goldfinch, may not start nesting until August.

Early morning is the best time to survey your block, as birds are most active at this time (early evening can be good too). Remember to make some dawn, dusk, or after-dark trips for nocturnal species such as woodcock, whip-poor-wills, and owls.

What about migrants? The Atlas is intended to record the distribution of breeding birds only. To avoid records of migrants that may later have to be deleted, follow these guidelines: (1) Except for the June-August period, record only those species that you have some reason to believe are nesting on the block. Thus a Great Horned Owl is acceptable in March but an American Tree Sparrow is not. (2) Within the June-August interval, do not record a species outside of its normal breeding period unless there is some concrete evidence of breeding (that is, unless the sighting would be recorded as 'probable' or 'confirmed'). (Appendix B lists the normal breeding periods for Iowa's nesting species.) For example, Canada Geese begin nesting as early as the third week in March. A pair seen in the first week of April would be coded as PProbable nesters. Red-winged Blackbirds seen at the same time would not be recorded, since they normally do not start nesting until May. A pair of Redwings mobbing the observer in the last week in May would be Probable; on the same trip, a single Redwing feeding alongside the road would be recorded Observed, and a Spotted Sandpiper in a ditch would again not be recorded, since its normal breeding period does not start

until the third week of May. A nesting Spotted Sandpiper on the same date would be CONFIRMED regardless of the date, since actual evidence of breeding had been obtained.

How are data to be reported? Four data reporting forms are provided. Although this system may seem complex, each of the four has a definite purpose. The four forms are:

1. The Checklist, used for reporting most sightings of birds on your block.
2. The Documentation Form, used to provide supporting evidence to substantiate observations of rare species.
3. The Special Sighting Report form, used to report the occurrence of species that do not require documentation, but which the Conservation Commission wishes to keep particular track of. Examples of such species are Upland Sandpiper and Loggerhead Shrike.
4. The Nest Card, used to report data on the habitat, location, and fate of any nest discovered.

The checklist.

The atlas checklist is used to record field observations and to summarize each year's data. You will need three checklists for every atlas block that you are surveying. One checklist is to keep with you in the field to record species observed and the breeding evidence obtained, and to serve as a reminder of observations previously made. The second checklist is used to summarize your results for the whole year on a given block. This checklist will be sent to the Regional Coordinator at the end of the breeding season. The third checklist is for you to keep as a permanent record of the species and breeding evidence recorded in the block. You may want to label your checklists 'Field', 'Master', and 'Record'. After each field survey any new information from the Field checklist should be transferred to the Record checklist to prevent loss or damage. Each Record checklist should contain information from one breeding season only. At the end of each breeding season enter the highest recorded levels of breeding evidence on the Master checklist for each block. Remember: use a different set of three checklists for each atlas block that you survey.

Checklists are easy to use! see Appendix D for a correctly filled-in example. To begin, write your name, address, and phone number at the bottom of the card. Then fill in the year, description of the location, county, township, range, and the block code number (which your Regional Coordinator will give you). For each visit to the block, record the date, hours afield (to the nearest half hour), and names of all observers. (If more

than one observer is working a block, count hours afield separately only if the observers are so far apart as to be out of voice contact while in the field.) This information is very important for determining whether our methods are doing an adequate job in surveying the breeding birds on a block, so please be complete and accurate.

The 'Comments' section on the front of the card is for entering observations on habitat, weather, etc..

For each species that you observe, enter the standardized breeding criteria code (Appendix A) under the appropriate column (OBServed, POSSible, PRObable, or COConfirmed). For example, if you see a Northern Cardinal building a nest enter NB under the column labelled CO for Northern Cardinal. The species are listed on the checklist in systematic order; names are those accepted by the American Ornithologists' Union (AOU) in the 6th Edition of the AOU Check-list (1983). Names of some species of Iowa birds have been changed in this recent edition and some of the new ones may be unfamiliar to you. Listed below are some of the name changes with the new names listed first.

NAME CHANGES OF IOWA BIRDS

New Name	Old Name
Great Egret	= Common Egret or American Egret
Northern Harrier	= Marsh Hawk
American Kestrel	= Sparrow Hawk
Common Moorhen	= Common Gallinule
Upland Sandpiper	= Upland Plover
Northern Flicker	= Yellow-shafted Flicker
Sedge Wren	= Short-billed Marsh Wren
Marsh Wren	= Long-billed Marsh Wren
Northern Parula	= Parula Warbler

The Checklist is the means by which your data will be transmitted for computer processing and analysis. It is the most important report that you will make. PLEASE make sure that it is correctly filled-in, neat, and LEGIBLE.

One of your primary objectives is to upgrade or strengthen the breeding evidence to COConfirmed for as many species as possible. Watch for higher levels of breeding evidence for recorded species as you search for previously-unrecorded ones. You should also attempt to upgrade the quality of supporting evidence within a level. (Levels, and categories of evidence within each level, are listed in relative order of importance in Appendix A.)

Documentation Forms

Rare breeding species (listed in Appendix C) and any species not listed here or in the list of regularly-breeding Iowa birds must be recorded on special documentation forms. This provides supporting evidence for scientifically important records. If you locate a nest of one of these species, or of a species that you cannot identify, contact your Regional Coordinator, a member of the Steering Committee, or a knowledgeable local birder for advice. Photograph the bird and nest if possible without serious disturbance to the nest.

If you are not familiar with filling in documentation forms, you may want to read the detailed article on the subject by Tom Kent, that appeared in 1981 in Iowa Bird Life, Volume 51, pages 88 to 98. Reprints are available from Hank Zaletel, IOU Treasurer, 715 West St., Colo, IA 50056. A filled-in example of a documentation form is included as Appendix D.

Special Sighting Reports

A number of rare or poorly-known species are easily identified. Lengthy documentation of sightings of such species are not required, but details of the time, place, and habitat of such sightings add significantly to our knowledge of them. Sightings of these species (marked with a single asterisk '*' on the checklist) should be recorded on special sighting reports. Copies of such reports are included as Appendix F. Multiple observations of the same species in close proximity should be combined on a single special sighting report. Note: all observations of these specially-designated species (those marked with either a single or a double asterisk) should be reported even if they are seen outside your survey block.

Nest Cards

The Nongame Program of the Iowa Conservation Commission attempts to keep track of Iowa's nesting species through a nest card program. Information about each nest discovered is recorded on standardized cards. The Nest Card Program yields valuable information about nesting dates and vegetation and habitat preferences. A filled-in example of a nest card is included as Appendix G. We would like atlassers to fill out cards for each nest that they find. Cards are enclosed; if you run out contact your Regional Coordinator for a resupply.

IMPORTANT: When documenting a sighting with a documentation form, special sighting report, or nest card, it is imperative that you record the appropriate data on the spot. Do not wait until you are at home; memories can evaporate with surprising speed in a day that is crowded with birds. You need not take the data on the form itself; many birders record data into a field notebook and later transcribe it to the form. In any event, it is important to record only that information that you yourself observed in the

field. If you consult field guides or other birders make sure that you distinguish between information recorded before and after the consultation.

When filling out any of the forms discussed above, use hard pencil; this will make it easier to update records and to correct errors. All checklists and other reports (documentation forms, special sighting reports, and nest cards) should be sent to your Regional Coordinator by September 15 of each year.

Atlassing Ethics

Conduct your atlassing efforts in a way that respects the rights of both birds and people.

Most atlassing will be done on private property. Please do not trespass; ask permission from landowners and explain the nature and purpose of the atlas to them. Please don't walk over crops, disturb livestock, leave gates open, or litter. Please obey all restrictions on foot or vehicle access on federal or state land. Disturb natural habitats as little as possible.

Do not approach nests too closely or flush nesting birds repeatedly. If it is desirable to document a nesting with photographs, do it with the minimum possible disturbance. Limit the use of tape-recorded calls to those of nocturnal species. Be cautious with 'spishing'; while effective in attracting nesting birds, excessive amounts can cause a dangerous amount of disturbance for a nesting pair.

Income-tax Deductions

The IRS allows a deduction on income tax for non-monetary contributions to non-profit organizations. Expenses incurred during atlassing efforts can be deducted by those who itemize. Deductible expenses include outlay for gasoline, motels, telephone calls, and postage. Be sure to keep detailed records at the time of the expenditures; in the event of an audit, they will be essential to substantiate the deductions. Read the section on deductions in your income-tax instructions for more detail.

Administrative Structure of the Atlas Project

The Iowa Breeding Bird Atlas is run by members of a Steering Committee, whose names are given below. We are in the process of establishing a network of Regional Coordinators, who will distribute forms to atlassers, and provide advice and backup support. Names of Steering Committee Members are given below; those of Regional Coordinators are listed in Appendix I. If you have questions about the Atlas, contact the local Regional

Coordinator if one exists; otherwise get in touch with a member of the Steering Committee.

Steering Committee Members:

Mike Newlon
Department of Zoology
University of Iowa
Iowa City, Iowa 52242
319-353-4874

Dave Newhouse
Wildlife Research Station
Rte. 1
Boone, IA 50036
515-432-2823

Bob Howe
Iowa Conservation Commission
Wallace State Office Building
Des Moines, Iowa 50139
515-281-8524

James Dinsmore
Department of Animal Ecology
Iowa State University
Ames, IA 50011
515-294-6148

Darwin Koenig
Box 389
Montezuma, Iowa 50171

Dean Roosa
State Ecologist
Iowa Conservation Commission
Wallace State Office Bldg.
Des Moines, IA 50139

EXAMPLES OF CODE USE

1. Woodpecker drumming: POSSIBLE-X within safe dates.
PROBABLE-T if in same place on two different days.
Note: this refers to territorial drumming, not to feeding.
2. Duck summers on pond without adjacent marshes suitable for breeding: POSSIBLE-O.
3. Woodcock display flights in same place for three weeks: PROBABLE-T. (POSSIBLE-X if observed only once; PROBABLE-C if courtship and display to female also observed.)
4. Singing male Chestnut-sided Warbler observed in suitable breeding habitat, but only once: POSSIBLE-H.
5. Song Sparrow seen carrying nesting material: CONFIRMED-NB.
6. Wood Thrush seen on nest for an extended period of time; nest too high to see contents: CONFIRMED-ON.
7. Great Blue Heron feeding along river away from any known nesting colony: POSSIBLE-O. Note: watch such a bird closely; it could lead you to a new colony.
8. Male House Wren sings all summer and stuffs nesting boxes with sticks; no evidence of a mate: POSSIBLE-O.
9. Male and female Scarlet Tanagers observed together several times in the same area but no nest or young ever seen: PROBABLE-P.
10. Kildeer doing broken-wing distraction display along roadside but young not seen: CONFIRMED-DD.
11. Field Sparrow nest found, containing three Field Sparrow eggs and one Brown-headed Cowbird egg: CONFIRMED-NE for both species. (A Field Sparrow feeding a young cowbird would be CONFIRMED-AY for both species.)

APPENDIX A: BREEDING CODES AND THEIR DEFINITIONS.

The codes listed here are those recommended by the Conference on North American Breeding Bird Atlas Projects.

The codes designate four levels of increasing certainty that a species nests on the block: observed, possible, probable, and confirmed. Likewise, within each level, codes indicate evidence of increasing quality that supports that level. Code letters have been designated where possible as mnemonic aids, based on key words in the definitions. Note that codes in the observed, probable, and possible levels are single letters, while codes in the confirmed category are two-letter. Please read the list of codes carefully and familiarize yourself with them, and with the examples of their use listed after the code table.

CODE SYMBOLS

Level	Code	Evidence
OBserved	O	Male or female of a species observed in a block during the breeding season, but no evidence of breeding observed.
POssible	H	Male or female of a species observed in suitable breeding habitat during its nesting season.
	X	Singing male(s) present in suitable nesting habitat during the breeding season.
PRobable	P	Pair observed in suitable nesting habitat during breeding season.
	T	Permanent territory presumed through defense (chasing of other birds, or song or display at the same location on at least two occasions a week or more apart).
	C	Courtship behavior or copulation observed.
	N	Visiting of probable nest-site.
	A	Agitated behavior or anxiety calls from adult(s).
	B	Nest building by wrens or excavation of holes by woodpeckers. (Note: nest construction by other species falls under the 'COnfirmed-NB' category).

Level	Code	Evidence
COnfirmed	NB	Nest building by all species except wrens and woodpeckers.
	PE	Physiological evidence of breeding: brood patch or egg in oviduct; based on bird in hand.
	DD	Distraction display or injury feigning by adult.
	UN	Used nest or eggshells found. Caution: these must be carefully identified if the record is to be accepted.
	FL	Recently fledged young, of altricial species, incapable of sustained flight, or downy young of precocial species, restricted to natal area by dependence on adults or limited mobility.
	ON	Occupied nest. Adults entering or leaving nest site in circumstances indicating occupied nest (includes high nests or nest holes, the contents of which cannot be seen) or adult incubating or brooding.
	AY	Attending young; adult carrying fecal sac or food for young, or feeding recently-fledged young.*
	NE	Nest with eggs; need to be identified with great care if adults are not present.*
	NY	Nest with young seen or heard; need to be identified with great care if adults are not present.*

*Note: Cowbird eggs or young give confirmed evidence of breeding for both Cowbird and host species.

IMPORTANT NOTE:

Any species should be documented if you observe it nesting at a time, location, or habitat extremely different from that listed in the table.

APPENDIX B: SPECIES REGULARLY BREEDING IN IOWA.

The table below lists the species of birds that nest in the state with regularity. These species need not be documented, but those marked with an asterisk should be recorded on a Special Sighting Report. Species that rarely nest in Iowa are listed in Appendix C and should always be documented. (Of course, any species not on either list should be documented as well.)

The column marked HABITAT & REGION gives in brief form the species' typical nesting habitat, and, if it is restricted to a particular region of the state, the region in which it breeds. Regional designations are keyed to the map that follows the table.

The column marked NESTING PERIOD gives the range of dates within which nesting normally occurs in Iowa, and in which migration does not normally occur. Outside of these dates, species should be recorded only if there is concrete evidence of nesting; that is, if the observation would be coded Probable or Confirmed.

Dates in the 'Nesting Period' column are indicated as follows: Each month has been divided into three parts, indicated by the numbers 1 to 3. Thus a species whose breeding period is indicated as '1 Jun - 3 Jul' is engaged in nesting in Iowa from the first ten days of June through the last ten days of July. (In many cases the dates given are not the extreme dates ever recorded, but have been chosen to include the bulk of normal breeding activity and to exclude as much of the migration as possible.)

Breeding range has been roughly indicated for species that nest in a restricted region of the state. Range descriptions are keyed to the map that follows the species list, which divides Iowa into nine regions, following county boundaries, and designated by reference to the points of the compass. Thus "E" means eastern Iowa and refers to the eastern one-third of the state; "NW" means north-west Iowa and refers to the block of counties in the northeast corner of the state.

IMPORTANT NOTE:

ANY species should be documented if you observe it nesting at a time, location, or habitat extremely different from that listed in the table.

REGULARLY-BREEDING SPECIES OF IOWA BIRDS

SPECIES	HABITAT & REGION	NESTING PERIOD
Pied-billed Grebe	Marshes, ponds	3 Apr - 1 Aug
American Bittern*	Marshes, wet fields; NW; NC	3 Apr - 2 Jul
Least Bittern	Marshes	3 May - 2 Jul
Great Blue Heron	Wooded River Bottoms	3 Mar - 3 Jul
Great Egret*	Woods near water; E	3 Apr - 1 Jul
Green-backed Heron	Woods near water	3 Apr - 1 Jul
Black-crowned Night-Heron*	Shrubs or trees near water	3 Apr - 2 Jul
Yellow-crowned Night-Heron*	Trees near water; S	1 May - 3 Jul
Canada Goose	Wetlands	3 Mar - 2 Jun
Wood Duck	Woods near water	1 Apr - 2 Aug
Green-winged Teal	Wetlands	2 May - 2 Jul
Mallard	Wetlands	1 Apr - 3 Jul
Northern Pintail*	Wetlands; NW; NC	2 Apr - 3 Jul
Blue-winged Teal	Wetlands	2 May - 2 Jul
Northern Shoveler	Wetlands; NW; NC	2 May - 2 Jul
Redhead	Wetlands; NW; NC	2 May - 3 Jul
Hooded Merganser*	Woods near water; E	3 Apr - 3 Jul
Ruddy Duck	Wetlands; NW; NC	2 May - 2 Aug
Turkey Vulture	Rocks, stumps, sheds; uplands	2 Apr - 2 Aug
Cooper's Hawk*	Timber; E	2 Apr - 1 Jul
Red-shouldered Hawk*	Riverbottom timber; E	1 Apr - 1 Jul
Broad-winged Hawk*	Timber; E	1 May - 2 Jul
Swainson's Hawk*	Timber	3 Apr - 3 Jul

SPECIES	HABITAT & REGION	NESTING PERIOD
Red-tailed Hawk	Timber	3 Mar - 1 Jul
American Kestrel	Open country with scattered trees	3 Apr - 1 Aug
Gray Partridge	Farmland; NW	3 Jun - 2 Aug
Ring-necked Pheasant	Farmland, brush	3 Apr - 2 Aug
Ruffed Grouse	Upland timber; NE	3 Apr - 3 Jun
Wild Turkey	Extensive forest	3 Apr - 2 Aug
Northern Bobwhite	Farmland, brush	3 Apr - 2 Aug
Virginia Rail	Marshes	2 May - 1 Jul
Sora	Marshes, wet fields	2 May - 2 Jul
Common Moorhen*	Ponds, marshes	2 May - 3 Jul
American Coot	Ponds, marshes	1 May - 3 Jul
Killdeer	Bare ground, roadsides	2 Apr - 3 Jul
Spotted Sandpiper	Pond or stream edge	3 May - 2 Jul
Upland Sandpiper*	Pastures, meadows	2 May - 3 Jun
American Woodcock	Moist woods	1 Apr - 3 Jun
Forster's Tern*	Marshes; NW; NC	2 May - 1 Jul
Black Tern*	Marshes; N	3 May - 1 Jul
Rock Dove	Buildings, bridges, cliffs	1 Feb - 3 Nov
Mourning Dove	Yards, woodlots, farms	3 Mar - 2 Sep
Black-billed Cuckoo	Forests, edges	1 Jun - 2 Aug
Yellow-billed Cuckoo	Forests, edges	3 May - 3 Aug
Eastern Screech-Owl	Open woods, groves	2 Apr - 1 Jul
Great Horned Owl	Woods	3 Jan - 2 May
Barred Owl	Riverbottom woods	1 Mar - 3 May

SPECIES	HABITAT & REGION	NESTING PERIOD
Long-eared Owl*	Conifer groves	2 Apr - 3 Jun
Whip-poor-will	Dry open woods	1 Jun - 3 Jul
Common Nighthawk	Bare ground, gravel roofs	3 May - 2 Jul
Chimney Swift	Towns, buildings	1 May - 1 Aug
Ruby-throated Hummingbird	Woods, towns, edges	1 Jun - 2 Aug
Belted Kingfisher	Banks of lakes or streams	2 Apr - 3 Aug
Red-headed Woodpecker	Open woods, farmland	1 Apr - 1 Jul
Red-bellied Woodpecker	Woodland	1 Apr - 1 Jul
Yellow-bellied Sapsucker	Woodlands; NE	1 May - 3 Jul
Downy Woodpecker	Woods, edges	1 May - 3 Jun
Hairy Woodpecker	Woods	1 May - 3 Jun
Northern Flicker	Woods, scattered trees	3 Apr - 1 Aug
Pileated Woodpecker	Extensive mature forest; E	2 Apr - 2 Jul
Eastern Wood-Pewee	Open woods, parks	3 May - 2 Jul
Acadian Flycatcher	Moist woods; E; S	3 May - 3 Jun
Willow Flycatcher	Willows, brush, hedgerows	2 Jun - 3 Jul
Eastern Phoebe	Bridges	1 May - 3 Jul
Great Crested Flycatcher	Woodlands	3 May - 3 Jul
Western Kingbird	Scattered trees, hedgerows; W	3 Jun - 2 Jul
Eastern Kingbird	Scattered trees, edges	1 Jun - 1 Aug
Horned Lark	Short grass, bare ground	2 Mar - 3 Jun
Purple Martin	Martin houses, open country	3 Apr - 2 Jul

SPECIES	HABITAT & REGION	NESTING PERIOD
Tree Swallow	Open areas near water	1 May - 2 Jul
Bank Swallow	Steep banks	1 May - 2 Jul
Cliff Swallow	Cliffs, bridges, buildings	2 May - 1 Jul
Barn Swallow	Buildings, bridges	2 May - 2 Jul
Northern Rough-winged Swallow	Cutbanks, towns, woods	2 May - 2 Jul
Blue Jay	Woods, farms, suburbs	3 Apr - 3 Jun
American Crow	Woods, farmland	1 Apr - 2 Jul
Black-capped Chickadee	Woods, suburbs	1 Apr - 3 Jun
Tufted Titmouse	Woods	1 May - 1 Jul
White-breasted Nuthatch	Woods	1 May - 3 Jun
Brown Creeper*	Woodlands; N	2 May - 3 Jun
Carolina Wren	Thickets, wood edges, gardens; S; E	2 Apr - 1 Jul
House Wren	Open woods, gardens	2 May - 2 Aug
Sedge Wren	Wet meadows, prairies	1 Jun - 3 Jul
Marsh Wren	Cattails, tall marsh vegetation	2 Jun - 3 Aug
Blue-gray Gnatcatcher	Woods near water	3 May - 2 Jul
Eastern Bluebird	Wood edges, farms, suburbs	3 Apr - 2 Aug
Veery*	Moist woods	1 Jun - 2 Jul
Wood Thrush	Moist woods	1 Jun - 3 Jul
American Robin	Open woods, yards, parks	1 Apr - 3 Jul
Gray Catbird	Thickets, hedgerows	2 May - 3 Jul
Northern Mockingbird	Shrubby pastures, hedgerows	3 Apr - 1 Aug
Brown Thrasher	Thickets, hedgerows	1 May - 1 Aug

SPECIES	HABITAT & REGION	NESTING PERIOD
Cedar Waxwing	Open woods, scattered trees	2 Jun - 3 Aug
Loggerhead Shrike*	Hedgerows, thickets	3 Apr - 1 Jul
European Starling	Nearly everywhere	2 Apr - 2 Aug
White-eyed Vireo*	Dense thickets; E; C	1 Jun - 3 Jul
Bell's Vireo*	Brushy fields, thickets	1 Jun - 1 Aug
Yellow-throated Vireo	Mature woods	1 Jun - 2 Jul
Warbling Vireo	Open woods, scattered trees	1 Jun - 3 Jul
Red-eyed Vireo	Woodlands	1 Jun - 3 Jul
Blue-winged Warbler*	Brushy fields, clearings	1 Jun - 2 Jul
Yellow Warbler	Willows, brush	1 Jun - 3 Jul
Yellow-throated Warbler*	Sycamores along streams; SE; C	1 Jun - 2 Jul
Cerulean Warbler*	Mature forest; S; E	1 Jun - 3 Jul
American Redstart	Moist forest; E; C; SW	3 May - 3 Jul
Prothonotary Warbler	Dead trees at edge of water	1 Jun - 3 Jul
Ovenbird	Extensive forest	1 Jun - 2 Jul
Louisiana Waterthrush*	Streams in mature forest	2 May - 3 Jul
Kentucky Warbler	Moist forest	1 Jun - 3 Jul
Common Yellowthroat	Brush, thickets	3 May - 1 Aug
Yellow-breasted Chat*	Brush, thickets	1 Jun - 3 Jul
Summer Tanager*	Mature forest; S	1 Jun - 1 Jul
Scarlet Tanager	Mature forest; E; NE	1 Jun - 3 Jul
Northern Cardinal	Brush, parks, yards	3 Apr - 2 Sep
Rose-breasted Grosbeak	Woods	1 Jun - 2 Jul

SPECIES	HABITAT & REGION	NESTING PERIOD
Blue Grosbeak	Brush, farmland; confined to Missouri floodplain	1 Jun - 2 Jul
Indigo Bunting	Forest edge, scattered trees, brush	1 Jun - 2 Aug
Dickcissel	Grasslands, roadsides	1 Jun - 2 Aug
Rufous-sided Towhee	Brush, open woods	1 Jun - 1 Aug
Chipping Sparrow	Yards, open woods	1 May - 2 Jul
Field Sparrow	Brushy fields	1 May - 3 Jul
Vesper Sparrow	Fields, Pastures	3 Apr - 2 Aug
Lark Sparrow	Sandy grasslands with shrubs or saplings	1 May - 3 Jul
Savannah Sparrow	Grasslands	3 May - 3 Jul
Grasshopper Sparrow	Grasslands	1 Jun - 3 Jul
Song Sparrow	Brush, field edges, hedgerows, suburbs	1 May - 3 Jul
Swamp Sparrow	Brush at edge of wetland	3 May - 2 Jul
Bobolink	Pastures, meadows, prairies	3 May - 1 Jul
Red-winged blackbird	Marshes, grasslands, roadsides	1 May - 2 Jul
Eastern Meadowlark	Pastures, grasslands	2 Apr - 1 Aug
Western Meadowlark	Pastures, grasslands	2 Apr - 1 Aug
Yellow-headed Blackbird	Cattail Marshes	1 May - 3 Jun
Common Grackle	Conifers, shelterbelts	2 Apr - 3 Jul
Brown-headed Cowbird	Nearly everywhere except urban areas	1 May - 3 Jul
Orchard Oriole	Scattered trees, roadsides	1 Jun - 1 Aug
Northern Oriole	Shade trees, open woods	1 Jun - 1 Aug
American Goldfinch	Brushy fields, hedgerows	1 Jul - 2 Sep
House Sparrow	Farms, urban areas	3 Apr - 3 Aug

APPENDIX C: SPECIES OCCASIONALLY OR RARELY BREEDING IN IOWA.

Species listed below either nest in Iowa either very rarely or in restricted areas or habitats. COMPLETE DOCUMENTATION is required for all records of these species, and of any species not listed in Appendixes B and C.

Eared grebe	Common Barn-Owl
Western Grebe (see note at end)	Chuck-Wills'-Widow
American Black Duck	Alder Flycatcher
American Wigeon	Least Flycatcher
Gadwall	Say's Phoebe
Ring-necked Duck	Scissor-tailed Flycatcher
Canvasback	Red-breasted Nuthatch
Lesser Scaup	Rock Wren
Bufflehead	Bewick's Wren
Bald Eagle	Winter Wren
Northern Harrier	Black-and white Warbler
Sharp-shinned Hawk	Golden-winged Warbler
Chukar	Northern Parula
King Rail	Chestnut-sided Warbler
Piping Plover	Worm-eating Warbler
Common Snipe	Hooded Warbler
Wilson's Phalarope	Great-tailed Grackle
American Avocet	Henslow's Sparrow
Franklin's Gull	Clay-colored Sparrow
Least Tern	Pine Siskin
Burrowing Owl	Ringed Turtle-dove
Short-eared owl	

NOTE: Western Grebes occur in two color phases that may represent distinct species, so it is important to record the color phases of any found nesting in Iowa. Descriptions of the color phases can be found in the field guides listed in Appendix H.

IOWA BREEDING BIRD ATLAS

REFERENCE NUMBER 530 NAME Hawkeye wildlife
LOCATION: COUNTY # 52 NAME Johnson
TOWNSHIP 81 N RANGE 7W E / W
QUADRANT SE SECTIONS 22-27, 34-36

COVERAGE RECORD

DATE	HOURS	LOCATION / OBSERVERS
4-11	2 1/2	Hawkeye WMA - N of HQ
5-3	4	" " " "
5-8	3	Farmland - S side
6-11	2	" " "
6-6	5	Hawkeye WMA
6-11	4	" " - N of HQ
6-15	3 1/2	Farmland - SW corner (very hot - few birds seen)

BRIEF COMMENTS ON HABITAT IN THIS BLOCK

N part, Hawkeye Wildlife Area: mixed cropland,
woodlots, weedy fields.
S part: farmland, woodlots

REPORTER: J. J. Audubon, Jr.
ADDRESS: 1300 Woodpecker Drive
CITY: Ames STATE: IA ZIP: 50011
TELEPHONE: (515) 247-3377

SPECIES	AOU#	DATE	OB	PO	PR	CO	#SEEN
PURPLE MARTIN	611.						
TREE SWALLOW	614.						
N. ROUGH-WINGED SWALLOW	617.						
BANK SWALLOW	616.	6/1/85	O				12
CLIFF SWALLOW	612.						
BARN SWALLOW	613.	6/1/85				ON	2
BLUE JAY	477.	6-1-85	O				3
AMERICAN CROW	488.	5-11-85			P		2
BLACK-CAPPED CHICKADEE	735.	5-11-85	(2)				2
TUFTED TITMOUSE	731.						
**RED-BREASTED NUTHATCH	728.						
WHITE-BREASTED NUTHATCH	727.	6-1-85				AY	2
*BROWN CREEPER	726.						
**ROCK WREN	715.						
**CAROLINA WREN	718.						
**BEWICK'S WREN	719.						
HOUSE WREN	721.	6-1-85			B		1
**WINTER WREN	722.						
SEDGE WREN	724.						
MARSH WREN	725.						
BLUE-GRAY GNATCATCHER	751.	6-6-85	O				1
EASTERN BLUEBIRD	766.	6-1-85				ON	2
*VEERY	756.						
WOOD THRUSH	755.	6-11-85		X			1
AMERICAN ROBIN	761.	6-1-85				ON	4
GRAY CATBIRD	704.						
NORTHERN MOCKINGBIRD	703.						
BROWN THRASHER	705.	5-11-85		X			1
CEDAR WAXWING	619.						
*LOGGERHEAD SHRIKE	622.						
EUROPEAN STARLING	493.	5-11-85				NB	2
*WHITE-EYED VIREO	631.						
*BELL'S VIREO	633.						
YELLOW-THROATED VIREO	628.						
WARBLING VIREO	627.	6-1-85		H			1
RED-EYED VIREO	624.	6-1-85	O				2
*BLUE-WINGED WARBLER	641.						
**GOLDEN-WINGED WARBLER	642.						
*NORTHERN PARULA	648.						
YELLOW WARBLER	652.						
**CHESTNUT-SIDED WARBLER	659.						
*YELLOW-THROATED WARBLER	663.						
*CERULEAN WARBLER	658.						
**BLACK-AND-WHITE WARBLER	636.						
AMERICAN REDSTART	687.	6-6-85				NB	2
PROTHONOTARY WARBLER	637.						
**WORM-EATING WARBLER	639.						
OVENBIRD	674.	6-6-85		H			0
*LOUISIANA WATERTHRUSH	676.						

APPENDIX E:

IOWA BREEDING BIRD ATLAS DOCUMENTATION FORM

What species? Winter WREN How many? 2 (pair)
 Location: County King Block 327
 Location in detail Green River State Forest, 2 1/2
mi N of Parking lot on Trail #3.
 Habitat? Narrow Ravine with dense thickets, blowdowns.
 When? date? 2 May 1984 Time: 7 AM to 7:45 AM
 Observer? Name: J. Audubon, L.B. Audubon
 Address: 1300 Woodpecker Dr. Ames 52803
 Telephone: 515-247-3377

Description of bird(s): include size, shape, detailed description of all parts including bill, eye, head, neck, back, wings, tail, throat, breast, belly, undertail, legs, feet; also voice and behavior. Use additional sheets if necessary.

Bird very small, about half the size of a House Sparrow. Plump; tail very short, cocked up. Color: Uniform dark brown, slightly paler on underparts, some darker mottling on wings and tail; heavy dark bars on flanks. Eye dark; bill, legs, feet brownish; bill slender, slightly decurved.

Behavior: kept low to ground, in dense cover; briefly attracted to 'spishing'. Called repeatedly, note a slurred 'chlink'.

Similar species and how eliminated: Size, color, tail indicate a wren; dark color and flank bars, short tail rule out House Wren.

Did anyone have reservations about identification? If so, explain:
NO.

Viewing conditions: lighting, distance and how measured, optical equipment used.

8X40 binoculars; range 15 to 40 feet (estimated).
Sun behind observer for part of time.

Previous experience with this species and other similar ones:

Have seen many Winter Wrens on migration;
House Wrens common breeder where we live.

BREEDING BEHAVIOR: Give all details observed that indicate that the species breeds on the block. If nest, eggs, young, or courtship display were observed, describe in detail.

Our attention drawn by agitated behavior of one bird, carrying a caterpillar in its beak. Bird stayed in small area; we located nest by begging calls of nestlings (4).

Nest: in cavity between roots of fallen tree; made of moss, grass stems; about 6" in dia.; cavity lined with small feathers.

If books or other birders were consulted before writing up the documentation, please list them here:

After initial sighting, consulted Peterson Field Guide to be sure of identification; this led us to observe diagnostic flank barring.

How long after observation were field notes made? ON THE SPOT

How long after observation was this form completed? 1 DAY

APPENDIX F: SPECIAL SIGHTING REPORT.

Observer: J. J. Audubon

Address: 1300 Woodpecker Dr.
Ames IA 50011

Species: Upland Sandpiper

County: Lark Block: 782

Exact Location: W side Co. Rd
K-30, 3 mi N, 3 1/2 mi E
of Lark City.

Habitat: PASTURE

Breeding Evidence: 2 males in
COURTSHIP FLIGHT

Notes: 4 birds total in
area

APPENDIX G: the NEST CARD

NORTH AMERICAN NEST-RECORD CARD PROGRAM

YEAR 1984

Shaded Boxes not to be completed by observer

Species: **Dickcissel**

Observer (two initials, last name) In squares in space opposite: **AN OBSERVER**

Locality (in relation to nearest town) **4 mi. S. of Boone**

County **Boone (08)**

State or Province **IOWA**

Elevation (in feet above sea level) **4135**

Latitude **41 35**

Longitude **85 7 41 09 34 52**

HABITAT (circle where appropriate)

1. Woods 2. Swamp 3. Marsh 4. Field 5. Grassland 6. Desert 7. Tundra 8. Suburban 9. Urban

0. Other (specify)

01. Coniferous 02. Deciduous 03. Mixed 04. Orchard 05. Cultivated 06. Fallow 07. No Veget. 08. Hedgerow

09. Shrub 10. Salt 11. Brackish 12. Fresh 13. Sandy Beach 14. Gravel beach 15. Other (specify)

DOMINANT PLANT(S) IN HABITAT (list one or two)

Reed Canary Grass / Lamb's Quarters

NEST SITE (circle where appropriate)

01 Bare ground 02 On ground in vegetation 03 Floating 04 Low vegetation 05 Shrub 06 Palm 07 Deciduous tree branch

08 Deciduous tree cavity 09 Conifer cavity 10 Conifer branch 11 Nest box 12 Other structure 13 Cliff or bank

14 Other (specify)

PRINCIPAL PLANT OR STRUCTURE

SUPPORTING NEST **ASTER**

Height of Eggs Above Ground or Water in Feet (feet and tenths if under five feet)

Feet **1** Tenths **2**

If parasited by Cowbird check here ☒ If same pair had other nestings this year, indicate which this is (1, 2, 3) (use separate card for each nesting)

rev. 5-4-71 PLEASE COMPLETE BOTH SIDES OF THE CARD

No. Col. 1-12 (Col. 2-14, side 1)

If used for colonial nesting check here ☐ and see instructions

COMMENTS

DATE	Eggs	Young	Edit	Build- ing	Adult On	Stage of building, if eggs warm, age of young, if banded, etc.
07 02	1				✓	3 COWBIRD EGGS; EGGS WARM
07 08	1				✓	EGGS WARM; ADULTS SCOLDING
07 11	1				✓	3 COWBIRDS HATCHED
07 14		1			✓	NEWLY HATCHED
07 18						NEST TORN APART

01 Unknown because not revisited
02 Young seen leaving nest
03 Parent(s) excited near nest
04 Parent(s) with young near nest
05 Nest empty, intact
06 Nest empty, damaged

OUTCOME INCLUDING CASES WHERE OUTCOME UNKNOWN (circle where appropriate)

07 Nest deserted
08 Failure due to weather
09 Failure due to predation
10 Failure due to invertebrate parasites
11 Failure due to cowbirds

12 Failure due to competition with other species
13 Failure due to human activities
14 Failure due to pesticides (give details separately)
15 Other (describe above)

Please complete both sides and return at end of season to your Regional Center or to Laboratory of Ornithology, Cornell University, Ithaca, New York 14850. We thank you for contributing your time and efforts to this program.

APPENDIX H: SELECTED REFERENCES ON THE NESTING BIRDS OF IOWA AND
ON BREEDING BIRD ATLASSING.

IDENTIFICATION.

The books listed here are standard field guides. They have little or no material on nests or nesting habits but contain information on the plumages and vocalizations of all species known to nest in Iowa.

Peterson, R. T. A Field Guide to the Birds of Eastern North America. Houghton Mifflin, 1980.

Robbins, C. S. and Zim, B. Birds of North America. Golden Press 1983.

Two new guides, more detailed than Peterson or Robbins and Zim:

National Geographic Society. A Field Guide to the Birds of North America. National Geographic Society, 1983.

Farrand, John Jr. The Audubon Society Master Guide to Birding. (3 Vols., illustrated with photographs). Chanticleer Press, 1983.

NESTS AND EGGS.

Harrison, H. A Field Guide to Western Bird's Nests. Houghton Mifflin, 1980.

This book describes the nests and eggs of nearly all species that nest, or might nest, in Iowa. Many are illustrated with photographs. A few species of eastern warblers that might nest in Iowa are not in this book, but are described in Harrison's companion volume, A Field Guide to Eastern Bird's Nests.

Harrison, Colin. A Field Guide to the Nests, Eggs, and Nestlings of North American Birds. Collins, London, 1978. Out of Print.

Another good book, this one out of print, but definitely worth looking for in libraries. Good photos of eggs, some paintings of nestlings, mostly of precocial species, good text but no photos of nests. A good complement to the guide above if you can find it.

NESTING STATUS OF IOWA BIRDS

Dinsmore, J., et al., Iowa Birds. Iowa State University Press, 1984.

This recently-published book contains detailed accounts of the status of all of Iowa's birds, including nesting status, habitat preferences, and range maps. Highly recommended; an essential reference for atlasers.

Petersen, P. and Fawks, E. A Field List of the Birds of the Quad-Cities Region. 1977. Contains brief descriptions in the form of bar charts of the

occurrence, migration, and nesting dates for the species that occur in eastern Iowa.

Available from Peter C. Petersen, 235 McClellan Blvd., Davenport, IA 52803, \$2 postpaid.

BREEDING BIRD ATLAS PROJECTS.

Laughlin, S., Kibbe, D., and Eagles, P. F. J. 1982. Atlassing the Breeding Birds of North America. American Birds, Jan. 1982, pp. 6-19.

An article describing the rationale, history, and techniques of atlassing, as well as capsule summaries of all North American Atlas Projects ongoing at the time, with names and addresses of contacts.

Laughlin, S., (Editor). 1981. Proceedings of the North American Breeding Bird Atlas Conference. Published by the Vermont Institute of Natural Science, Woodstock, VT 05091; \$12 postpaid.

This volume contains accounts of all atlas projects active in North America at the time of the conference, and sections on the purpose and design of atlases, sampling methodology, and data collection and analysis.

APPENDIX I: REGIONAL COORDINATORS

NAME	ADDRESS	COUNTIES
Neil Bernstein	Mt. Mercy College 1330 Elmhurst Dr. Cedar Rapids 52402 363-8213	Linn Johnson
James Dinsmore	Dept of Animal Ecology Iowa State University Ames 515-294-7669 (O) 515-292-3152 (H)	Story Boone Palo Alto
Charlotte Scott	320 E. Lee Seymour 52590	Wayne Appanoose
Jim Fuller	6 Longview Knoll RR6 Iowa City 52240 319-338-3561	SE Iowa
Clinton Fraley	Clay Co. Conservation Board 420 10th Ave. SE Spencer 51301 712-262-2187 (O) 712-283-2588 (H)	Clay
Dave Ewart	The Nature Conservancy Suite 311 424 10th St. Des Moines 50309 515-244-5044 (O) 515-287-6895 (H)	Polk Warren
Ron Muilenberg	Box 746 Oskaloosa 52877 515-673-7547	Oskaloosa area
John Bowles	229 Univ. St. Pella 50219 515-628-1151 (H) 515-628-5204 (O)	Marion Mahaska Jasper Poweshiek
Roberta Oppedahl	906 Suburban St. NE Cedar Rapids 52402 319-393-2572	Jones Cedar
Phyllis Harris	Union IA 515-486-5587 (O)	Hardin Marshall Grundy

515-486-5560 (H)

Barb Wilson

Box 41
Hastings IA 51540

Mills

Peter Petersen

235 McClellan Blvd.
Davenport 52803
319-355-7051

Scott Clinton
Muscatine

Ross Silcock

Box 300
Tabor IA 51653
712-629-5865

Fremont

Eugene Armstrong

Booneville 50038
515-996-2726

Madison Dallas

Marlys Huff

310 S. 18th Ave.
Marshalltown IA 50158

Marshalltown

and
Beth Proescholdt

Liscomb, IA 50148
515-496-5219

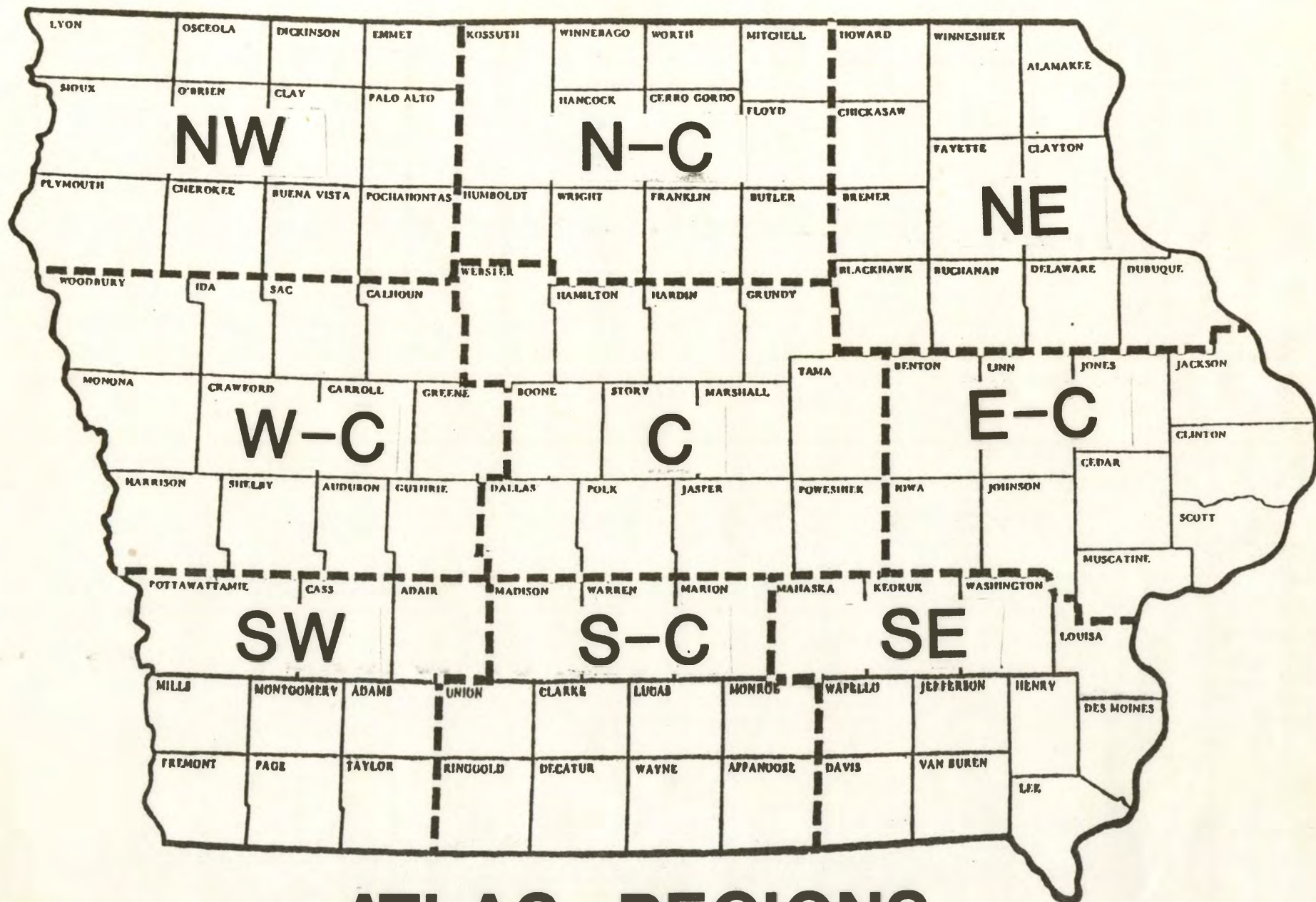
Marshalltown

Carl Bendorf

825 7th Ave.
Iowa City 52240
314-351-4958 (h)
314-622-3291 (o)

Iowa Benton

NOTE: Please contact one of the Steering Committee, if
you want to survey an area not assigned to a
Regional Coordinator. Want to volunteer to
coordinate efforts in your area?



ATLAS REGIONS