30 YEARS

Robert F. Clarke

THE KANSAS SCHOOL NATURALIST

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The Kansas School Naturalist is sent upon request, free of charge, to Kansas teachers, school board members and administrators, librarians, conservationists, youth leaders, and other adults interested in nature education. Back numbers are sent free as long as supply lasts. Send requests to The Kansas School Naturalist, Division of Biological Sciences, Emporia State University, Emporia, Kansas, 66801.

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"Statement required by the Act of August 12, 1970, Section 3685, Title 34, United States Code, showing Ownership, Management, and Circulation." The Kansas School Naturalist is published in October, December, February, and April. Editorial Office and Publication Office at 1200 Commercial Street, Emporia, Kansas 66801. The Naturalist is edited and published by Emporia State University, Emporia, Kansas. Editor, Robert F. Clarke, Division of Biological Sciences.
The Kansas School Naturalist began its life 30 years ago through the efforts and initiative of Dr. John Breukelman. It seems a long time ago when he asked me to illustrate the first issue of the fledgling journal. The years since its inception have witnessed a series of 120 issues that have been supplied to the citizens of Kansas and a substantial number of “outsiders” at no charge. Responses received have indicated that the original concept had a foundation in need, as stated in Volume 1, No. 1:

It is the hope of the editorial committee that The Kansas School Naturalist may be of special help to teachers in at least three ways. First, we hope that the information provided in the articles, tables, and illustrations may be useful in teaching about Kansas and its natural interests. Second, we hope teachers will find methods, devices, activities, and tricks-of-the-trade to help them find something for the students to do, as well as something to study about. And third, we hope that the magazine may serve as a clearing house for both information and activities, so that teachers may use its columns to help each other.

An issue of this sort must be dedicated to those persons most important to the continued production and quality of the Naturalist. To the past two editors, Drs. John Breukelman and Robert Boles, therefore, this 30-year commemorative issue is dedicated. These two handled the editorship as a labor of love; not as a task — and the “proof is in the pudding,” as is said.

Plans for the Naturalist series were drawn up at a long breakfast meeting attended by Dr. Breukelman, President John E. King, and Dr. E. Laurence Palmer, during the summer of 1954. Dr. Palmer, of Cornell University, was the long-time editor of the Cornell Rural School Leaflet, which became the Cornell Science Leaflet, the concept of which was used as a model for the Kansas School Naturalist.

Dr. Boles took over the reins in 1968 and for the next 12 years guided the Naturalist on a steady course, writing and illustrating many of the issues. When Dr. Boles retired from the university in 1980, I inherited the editorship.

The present issue intends to present a retrospective scan of the entire series, and will give the reader an idea of the topics covered. Some of the titles, particularly those of the most recent years, are still available and will be gladly sent upon request. It will be necessary to write first in order to ascertain availability. Those that are out of print will be photocopied for one dollar per copy.

Cover Photo: The three editors are shown with their 30 years of issues of the Kansas School Naturalist. Dr. Breukelman is in the center, flanked by Dr. Boles on his right and Dr. Clarke on his left.
VOLUME 1  (1954-1955)

No. 1 WINDOW NATURE STUDY Oct. 1954
The content explained ecological concepts that could be explained around a school building by examining "ordinary" things: the window and what comes through it, erosion, frost patterns, birds, aquaria and terraria.

No. 2 WILDLIFE IN WINTER Dec. 1954
What winter is like in Kansas, how animals survive the winter, weeds above the snow, snow as cover, winter fur bearers, winter birds, and snow clues make up this issue.

No. 3 CHILDREN'S BOOKS FOR NATURE STUDY Feb. 1955
Somewhat dated now, this is an annotated list of books useful for children to understand nature.

No. 4 LET'S GO OUTDOORS April 1955
What there is to see "outdoors" in Kansas, plus wild foods, lakes and parks in Kansas.

VOLUME 2  (1955-1956)

No. 1 FALL WILDFLOWERS Oct. 1955
A pictured group of typical wildflowers, with "playing with wildflowers," "seed travelers," etc.

No. 2 SNOW Dec. 1955
A description of what snow is, snowflakes, tracks in the snow, and what you can do with snow.

No. 3 SPRING WILDFLOWERS Feb. 1956
Like the Fall Wildflowers, but this is a description of the spring flora.

No. 4 TURTLES IN KANSAS Apr. 1956
Descriptions, keys, illustrations, and natural history of all of the turtle species that occur in Kansas.

VOLUME 3  (1956-1957)

No. 1 HAWKS IN KANSAS Oct. 1956
Descriptions and accounts of the various hawks, along with a plea for conservation of these raptors.

No. 2 CHILDREN'S BOOKS FOR NATURE STUDY Dec. 1956
More annotated lists of good books, arranged by content into natural areas.

No. 3 LIFE IN A POND Feb. 1957
Describes the pond ecosystem, its organization, members, and energy flow.

No. 4 SPIDERS Apr. 1957
A general account, with specific forms illustrated and described, of the common Kansas spiders.
CHILDREN’S BOOKS
FOR NATURE STUDY

THE KANSAS SCHOOL NATURALIST

VOLUME 4 (1957-1958)

No. 1 ALONG THE ROADSIDE Oct. 1957
Things to see and do in roadside parks,
ditches, weed patches, and the like.

No. 2 AN OUTLINE FOR CONSERVATION
TEACHING IN KANSAS Dec. 1957
For elementary grades, this was made up
by a group of elementary teachers attend­
ing a summer conservation workshop.

No. 3 TREES Feb. 1958
An illustrated account of the common
trees of Kansas.

No. 4 SUMMER WILD FLOWERS Apr. 1958
As in preceding issues, this illustrated
booklet details with a specific flora of the
year.

VOLUME 5 (1958-1959)

No. 1 WATERSHEDS IN KANSAS Oct. 1958
Describes what a watershed is and the
steps to develop these in Kansas. A map
shows where development has occurred.

No. 2 LET’S BUILD EQUIPMENT Dec. 1958
A description of science devices that can
be constructed easily and used in elemen­
tary grades.

No. 3 POISONOUS SNAKES IN KANSAS Feb. 1959
An illustrated description of all of the
poisonous snakes that may occur in Kan­
sas, along with generalizations about non­
poisonous snakes. This is the only issue
produced in color.

No. 4 LIFE IN A STREAM Apr. 1959
What occurs in a stream and how to study
it.

LIFE IN A STREAM

(1958-1959)
VOLUME 6 (1959-1960)

No. 1 FIELD TRIPS Oct. 1959
The "Do-s and Don't-s" of field tripping, either as a couple or as a class. Also included is a list of necessary items.

No. 2 CONSERVATION ARITHMETIC Dec. 1959
A series of arithmetic problems arranged by categories: water, precipitation, land and people, erosion, grass, forests, etc.

No. 3 THE SPARROW FAMILY Feb. 1960
An illustrated bird guide for the sparrows. Includes, too, migration routes, plumage changes, distribution, behavior, and more.

No. 4 MEASURES AND WEIGHTS Apr. 1960
Explains systems of measurements and gives sizes of such items as wire, shot, nails, game areas, and the like.

VOLUME 7 (1960-1961)

No. 1 LET'S EXPERIMENT Nov. 1960
A group of exciting experiments that students can perform, using common items for equipment.

No. 2 RECENT SCIENCE BOOKS FOR CHILDREN Jan. 1961
Categorized lists of recent books, primarily intended for elementary levels.

No. 3 THE GREATEST SHOW ON EARTH Mar. 1961
No, not the circus! A booklet on how to "bird watch," with hints on how to locate birds and a Kansas "finding chart."

No. 4 THE F.B. AND RENA G. ROSS NATURAL HISTORY RESERVATION May 1961
A description of the KSTC Reservation in Lyon County, with biological uses pictured and described.

THE CACTI OF KANSAS
VOLUME 8  (1961-1962)

No. 1  RHYTHMS IN NATURE  Nov. 1961
Physical and biological rhythms are described, such as temperature, humidity, and animal vocalizations.

No. 2  THE CACTI OF KANSAS  Jan. 1962
An illustrated guide to eight cacti that may be found in the state, along with general information.

No. 3  THE FORMATION OF THE SOIL  Mar. 1962
Description of the soil, its makeup and uses.

No. 4  LET'S BUILD EQUIPMENT  May 1962
How to make all sorts of useful things for studying nature.

VOLUME 9  (1962-1963)

No. 1  THE TERNs OF KANSAS  Nov. 1962
Descriptions of these graceful birds includes nesting and other habits.

No. 2  KANSAS NATURAL HISTORY IN 1863  Jan. 1963
What it was like in Kansas one hundred years ago. Maps and old photos are included.

No. 3  ATTRACTING WILDLIFE FOR OBSERVATION  Mar. 1963
How to get mammals, birds, and other creatures closer for study.

No. 4  THE WATER TABLE  May 1963
What and where water is — and why it is important to know about it.

VOLUME 10  (1963-1964)

No. 1  MICROCLIMATE  Oct. 1963
The "climate near the ground" and how it is measured, as well as the importance of understanding how creatures are affected by it.

No. 2  INSECTS  Dec. 1963
Life histories, how to collect and study, and selected groups of Kansas insects are described.

No. 3  THE GEOLOGY OF KANSAS  Feb. 1964
A description of the rocks which underlie and outcrop in Kansas. How to understand what you see in rocks.

No. 4  CAMPING IN KANSAS  Apr. 1964
What to take and where to go. A map shows important camping spots.
VOLUME 11  (1964-1965)

No. 1  ECOLOGY  Oct. 1964
Describes general aspects of the study of interdependence, including effects of man.

No. 2  UNWANTED PARTNERS  Dec. 1964
A description of parasites and their life histories.

No. 3  WHAT IS CONSERVATION?  Feb. 1965
The result of the Conservation Workshop, this issue describes what conservation is and how to approach its teaching at the elementary level.

No. 4  LIZARDS IN KANSAS  Apr. 1965
Illustrated descriptions and relevant data on the 14 naturally occurring species and one introduced form.

VOLUME 12  (1965-1966)

No. 1  DINOSAURS  Oct. 1965
Written by two eighth grade students, reptiles of the Mesozoic Era are described.

No. 2  YOUR SCIENCE PROJECT  Dec. 1965
How to prepare and present a project for a Science Fair.

No. 3  WHAT GOOD ARE INSECTS  Feb. 1966
Surprising descriptions of useful insects.

No. 4  LET'S EXPERIMENT  Mar. 1966
Lists experiments that can be performed with minimum equipment to demonstrate various principles.

VOLUME 13  (1966-1967)

No. 1  YOUR NATURE IQ  Oct. 1966
A series of silhouettes with questions pertaining to them on facing page. Answers are at end of booklet.

No. 2  TIME AND VELOCITY  Dec. 1966
Aspects of counting time and its effects on organisms.

No. 3  FERNS IN KANSAS  Feb. 1967
Although Kansas is not thought of as a place one would seek ferns, 15 are described, along with distribution maps.

No. 4  RECENT SCIENCE BOOKS FOR CHILDREN  Apr. 1967
This is the fourth in a series intended to provide titles of suitable elementary reading.

LIZARDS IN KANSAS

By

Robert F. Clarke

THE KANSAS SCHOOL NATURALIST

Vol. 12  Kansas State Teachers College  Emporia, Kansas  Apr. 1965
**TIME AND VELOCITY**

**THE KANSAS SCHOOL NATURALIST**

**VOLUME 14 (1967-1968)**

**No. 1** **YOUR ECOLOGY IQ**  Oct. 1967
A variety of organisms and concepts is presented, with questions that pertain to them.

**No. 2** **WINTER NATURE STUDY**  Dec. 1967
Things to look at and do in the snow.

**No. 3** **DOOMED FOR EXTINCTION?**  Feb. 1968
Animals that could become extinct if steps are not taken to prevent it.

**No. 4** **THE FIRST 14 YEARS**  Apr. 1968
A review of the first years of the Naturalist under Dr. Breukelman. Dr. Boles begins.

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**VOLUME 15 (1968-1969)**

**No. 1** **ALL SMALL FISH AREN'T MINNOWS**  Oct. 1968
Drawings and descriptions of a number of small fresh water fish.

**No. 2** **PLANTS OF THE HOLIDAY SEASONS**  Dec. 1968
Types of plants and their uses in decoration at certain seasons.

**No. 3** **AMERICA THE BEAUTIFUL**  Feb. 1969
Pollution of various sorts is described - along with an appeal for caring.

**No. 4** **COMMON SPRING WEEDS**  June 1969
What are those things growing in the yard in place of grass? This tells you.

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*The Kansas State Teachers College, Emporia, Kansas*
VOLUME 16 (1969-1970)

No. 1 BEES Oct. 1969
Bees, hives, honey — and how to raise them.

No. 2 WHAT BIOLOGISTS DO Dec. 1969
The first of two booklets devoted to describing the duties of the biology faculty at KSTC.

No. 3 FUN WITH WINTER TWIGS Feb. 1970
A key to winter twigs and identification photos of the whole trees.

No. 4 SALAMANDERS OF KANSAS AND VICINITY Apr. 1970
Illustrated descriptions of these amphibians from Kansas and nearby.

VOLUME 17 (1970-1971)

No. 1 MORE ABOUT BIOLOGISTS AND THEIR WORK Oct. 1970
The second series about KSTC biologists.

No. 2 THE MOON Dec. 1970
Phases, characteristics, and character in folklore.

No. 3 ALABASTER Feb. 1971
The albino rattlesnake that was a pet for some 15 years.

No. 4 SHADOWS IN THE NIGHT Apr. 1971
All about owls, with silhouettes of different kinds.

VOLUME 18 (1971-1972)

No. 1 NO LICENSE REQUIRED Oct. 1971
A booklet on Kansas birdwatching with a list of Kansas birds.

No. 2 THERE'S A FUNGUS AMONG US Dec. 1971
Toadstools and mushrooms are described.

No. 3 ENVIRONMENTAL INVESTIGATIONS Feb. 1972
What to see and how to study pollution.

No. 4 FIELDS TRIPS FOR THE 70's Apr. 1972
Shorter and longer field trips in Kansas.
VOLUME 19 (1972-1973)

No. 1 MAMMAL SILHOUETTES NO. 1 Oct. 1972
Various mammals of the world are shown in silhouette and described.

No. 2 TIGER HUNTING IN KANSAS Dec. 1972
A description of Tiger Beetles, with a key to Kansas species.

No. 3 SOME QUESTIONS ABOUT WILDLIFE Feb. 1973
This is an illustrated quiz about wildlife.

No. 4 PESTICIDES AND THE ENVIRONMENT Apr. 1973
A booklet about effects of pesticides, with specific facts on Kansas use and misuse.

VOLUME 20 (1973-1974)

No. 1 A BIT OF KANSAS HISTORY Oct. 1973
An issue devoted to the geology and natural history of Doniphan County.

No. 2 NATURE POETRY Dec. 1973
Dr. John Breukelman has written some extremely expressive and feeling poetry.

No. 3 PROTECTIVE COLORATION Feb. 1974
What is meant by "cryptic", "mimicry", and other terms utilized to describe ways that animals are concealed.

No. 4 WITH THESE TWO HANDS Apr. 1974
The story of Richard Schmidt, our taxidermist for two decades. A most remarkable man.
VOLUME 21 (1974-1975)
No. 1 MAMMAL SILHOUETTES NO. 2  
Oct. 1974  
A continuation of a previous issue. Shows silhouettes of world animals and has questions and discussion.

No. 2 FENCES  
Dec. 1974  
There are many types of fences in Kansas. They are described and discussed.

No. 3 WHOSE ENVIRONMENT?  
Feb. 1975  
At issue is "What is happening to my environment?", "What can I do?"

No. 4 FOSSILS IN KANSAS  
Apr. 1975  
This issue describes again the geology of Kansas and its fossils.

VOLUME 22 (1975-1976)
No. 1 MAMMAL SILHOUETTES NO. 3  
Oct. 1975  
A continuation of the mammals of the world in silhouette, with information.

No. 2 NATURE POETRY II  
Dec. 1975  
Dr. Breukelman again shows his talent with this group of poems.

No. 3 THE CARP  
Feb. 1976  
This is a manual stressing observation.

No. 4 ENERGY  
Apr. 1976  
As subtitled, this is an "unappreciated commodity." All about energy sources.
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<td><strong>No. 1</strong> YOU CAN BE INFORMED</td>
<td><strong>No. 1</strong> THE METRIC SYSTEM</td>
<td><strong>No. 1</strong> THE METRIC SYSTEM</td>
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<tr>
<td>An annotated list of papers and books that is a sequel to &quot;Whose Environment?&quot;</td>
<td>An explanation of a system of measurement in use by most countries of the world, except USA.</td>
<td>Again, the metric system is described and gives ways in which it can be taught.</td>
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<tr>
<td><strong>No. 2</strong> AN ECOLOGICAL LOOK AT WEEDS</td>
<td><strong>No. 2</strong> NATURE POETRY</td>
<td><strong>No. 2</strong> ANIMALS IN THE CLASSROOM</td>
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<td>All about &quot;weeds&quot; - the problem and solutions.</td>
<td>Again, Dr. Breukelman has delighted everyone with his rhymes.</td>
<td>How to get and maintain animals in your classroom.</td>
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<td><strong>No. 3</strong> KEY TO SOME COMMON WOODY PLANTS</td>
<td><strong>No. 3</strong> FRESHWATER BENTHOS</td>
<td><strong>No. 3</strong> I DIDN'T KNOW THAT (FISHES)</td>
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<td>How to know some of the more common big bushes and trees.</td>
<td>A description of those organisms that live on the bottom of aquatic systems.</td>
<td>Many odd, unusual facts about fishes.</td>
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<td><strong>No. 4</strong> FRESHWATER ZOOPLANKTON</td>
<td><strong>No. 4</strong> BIOLOGICAL BASEBALL</td>
<td><strong>No. 4</strong> I DIDN'T KNOW THAT (INSECTS)</td>
</tr>
<tr>
<td>A description of the small animals found in ponds and streams.</td>
<td>How to play the game, with suggested questions.</td>
<td>Same as above - about insects.</td>
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KANSAS
SUNFLOWERS
by H.A. STEPHENS

THE KANSAS SCHOOL NATURALIST
Emporia State University
Emporia, Kansas

No. 1 I DIDN'T KNOW THAT: AMPHIBIANS AND REPTILES Oct. 1980
Many facts about these creatures that people believe - but are wrong; and many that are true.

No. 2 KEY TO WOODY PLANTS Dec. 1980
Illustrated method of identification for common woody plants.

No. 3 KANSAS NONGAME & ENDANGERED WILDLIFE Feb. 1981
A description of the Nongame program in Kansas and what it is attempting to do.

No. 4 LET'S GO HIKING Apr. 1981
Where to go and how to go hiking in Kansas - trails are illustrated.

KANSAS NONGAME & ENDANGERED WILDLIFE
by Marvin Schilling

THE KANSAS SCHOOL NATURALIST
Emporia State University
Emporia, Kansas

VOLUME 26 (1979-1980)
No. 1 I DIDN'T KNOW THAT: BIRDS Oct. 1979
Many odd, unknown bits of information about birds.

No. 2 MICROBIOLOGY LABORATORIES MADE EASY Dec. 1979
All kinds of things that can be done to make the teaching of microbiology easier.

No. 3 SNAKES IN KANSAS Feb. 1980
How to identify any snake in Kansas.

No. 4 I DIDN'T KNOW THAT: MAMMALS Apr. 1980
Lots of what you wanted to know about mammals.
The various kinds of sunflowers that exist in Kansas - some are forms that are usually not known as sunflowers.

D.O.R. means Dead on Road. Many animals are killed on roads in Kansas. Here is a message.

The purpose in visiting a zoo is explained and a list of things to observe is included.

What are soil types? How are they formed? What is in Kansas? Answers are here.
BOOK REVIEWS

NEW BOOK CONVEYS RICH DRAMA OF THE DAILY LIVES OF EAST AFRICAN WILDLIFE

SAFARI: The East African Diaries of a Wildlife Photographer, photographs by Gunter Ziesler and diary notes by Angelika Hofer, is a book as dazzling as the subject it describes (Publication date: September 7, 1984; Price: $24.95).

There are many books containing photographs of African wildlife, but few, if any, demonstrate the extraordinary results of so many hours, days and months spend waiting patiently to get the perfect shot. Patience, as consulting editor Nigel Sitwell says in the introduction, is probably the most important attribute of a wildlife photographer.

FROM THE ARTIC TUNDRA TO STEAMY JUNGLES, DISCOVER MYRIAD FORMS AND BEHAVIORS OF EARTH'S MOST POPULOUS CREATURES

Insects make up well over three-quarters of all the world's living creatures. From arctic tundra to steamy jungles, from arid deserts to grassy meadows, they display a remarkable ability to exist in almost every conceivable habitat and an incredible diversity of forms and behaviors.

Naturalist Anthony Wootton paints readers a colorful collage of this infinitely varied universe in INSECTS OF THE WORLD (Publication date: September 1984; Price: $17.95, hardbound). Using examples from all over the world, the author describes what insects are, how they originated and how they are distributed in myriad habitats.

HIGHLY INDIVIDUAL LIFESTYLES DETAILED IN SPIDERS OF THE WORLD

Often associated with witches, poisonous appetites, and bad luck, spiders are, in fact, very seldom dangerous to man.

The highly individual lifestyles of these frequently misrepresented creatures are vividly illustrated in SPIDERS OF THE WORLD, By Rod and Ken Preston-Mafham (Publication date: September 1984; Price: $17.95, hardbound).

The book offers an easy-to-read introduction to arachnoids around the world by discussing a number of representative spider families most likely to be noticed by the casual observer. Designed for amateur naturalists, the work gives a fascinating glimpse into structure, environment, and habits of these little known arachnids, with intriguing facts.

Lavishly illustrated with 64 color and 45 black and white photographs, as well as 29 line drawings, SPIDERS OF THE WORLD is certain to delight readers with the unusual beauty and variety of spiders on this planet.