

**HOW TO TAKE**

# **Bird Pictures**

**WITH STILL AND MOVIE CAMERAS**

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**EASTMAN KODAK COMPANY**



CEDAR WAXWING

## HOW TO TAKE

# Bird Pictures

WITH STILL AND MOVIE CAMERAS

BIRDS have fascinated man's mind, piqued his sense of beauty, and challenged his imagination since before recorded history. Their colors, their songs, and their power of flight have inspired artist, philosopher, and scientist down through the ages. Small wonder, then, that today, in addition to ornithologists who photograph birds for science, there is an ever-growing fraternity of amateur photographers who take bird pictures just because they like to.

You can take bird pictures too! Perhaps you have hesitated to try because you felt you did not know enough about either photography or birds. If so, the satisfactions of a rewarding hobby lie before you. You *can* take bird pictures. This pamphlet will tell you how.

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T.M. REG. U.S. PAT. OFF.  
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This punching provides convenient means  
of insertion in the *Kodak Photographic  
Notebook*. See your Kodak dealer. ➔

Bird photography draws on two large fields of knowledge: photography and ornithology. This pamphlet has to do with photographic equipment and its use in bird photography. Books concerned primarily with ornithological aspects of the subject are listed in the bibliography on page 16. Particular attention is called to the pamphlet by Roger T. Peterson, published by the National Audubon Society, and available from its offices at 1000 Fifth Avenue, New York City.

Because bird pictures appeal to people not only as individuals but also in groups, and because most birds are colorful and people want to see them in color, the bird pictures generally desired are slides or movies in color. The primary purpose here, therefore, is to tell you how to take pictures of birds on Kodachrome Film.

### **BEFORE TAKING PICTURES**

THERE is one precaution that you should take before going on any trip on which you plan to take pictures. Never set out with equipment you have not used. In fact, whether your camera, lenses, exposure meter, or other equipment is old or new, use them all. Make test shots at several measured distances, and *see the results before you go*.

Many pictures are lost because photographers do not understand their equipment. Practice the operation of all of your equipment until its use becomes second nature. If you plan a long trip, arrange to send back your film for processing and have it returned to someone at home to review so that he can advise you if anything goes wrong.

### **WHERE TO TAKE PICTURES**

TO THE bird photographer, the most endearing thing about birds is that, in order to bathe, raise families, and eat at feeders, they very obligingly return to the same places. This makes it practical to set up an ordinary camera at a well-used bird bath, a nest, or a feeding station, to conceal yourself, and to wait for your opportunity to photograph the bird you want, in the pose you want. Some birds don't mind having people near-by and will come to a bath or feeder even when you are within a few yards and in plain sight; others are so shy that they will not return even to their nests if you are near.

In bird photography, you usually want the image of the bird to occupy a relatively large portion of the picture. You can accomplish this in two ways. You can take a close-up picture or you can use a long-focal-length lens on your camera so that you will get a large image even though your camera is some distance away. The technique you choose should depend on your equipment, the terrain, and the shyness and habits of the bird you are photographing.

## STILL PICTURES

THESE instructions tell how to take close-up pictures of birds at a bath, nest, or feeding place. The camera is set up on a tripod close to the subject, either in a blind or partially concealed. When photographing some birds, it will be possible for you to be in a blind and operate the camera from there. More frequently, however, although you can set up your camera close by, you will have to operate it by remote control while you remain concealed at a distance. For some very timid or wary birds which will not tolerate a camera close by, you will need a camera with a long-focal-length lens which you can set up in a blind from five to twenty feet away. For most pictures you should use flash lamps whether daylight is present or not.

### EQUIPMENT FOR BIRD PICTURES

THESE instructions apply to many types of cameras, but are most suitable for typical miniature cameras. Specific instructions are given for the use of a Kodak miniature camera and for the Kodak Precision Enlarger camera setup which appeals to the serious bird photographer. However, any camera in which you can expose Kodachrome Film can be used to take bird pictures according to these instructions, as long as it is one with which you can take flash pictures.

One camera that is readily adaptable to bird photography is the Kodak Flash Bantam. This camera uses Kodachrome Film K828 which is supplied in 8-exposure rolls. In bird photography, rolls of this length are preferable to the longer rolls used by other miniature cameras because there is sometimes a wait of days between pictures and you may want to send for processing the few frames you have already exposed. The Flash Bantam focuses down to  $2\frac{1}{2}$  feet without close-up lenses and has built-in contacts for flash picture taking.

The Kodak 35 Camera is also adaptable to bird photography. It uses Kodachrome Film K135 which is supplied in 20- or 36-exposure rolls. Films in these larger rolls are of particular value when a number of pictures are to be taken. A Kodak 35 Camera focuses to 4 feet without supplementary lenses and has a range finder.

For close-up pictures with most cameras, you will need three close-up lenses, the Kodak Porta Lenses 1+, 2+, and 3+, to take pictures at 20 to 30, 13 to 20, and 10 to 13 inches, respectively. The 1+ lens is not needed for the Flash Bantam Camera. You may need a Kodachrome Type A Filter for Daylight, and a Kodak Wratten CC15 Filter.

Some bird photographers use reflex, press, view, or other cameras with which they can make not only 2 x 2-inch slides but also large

transparencies on Kodachrome or Kodak Ektachrome Film. Such a camera should be of the ground-glass focusing type and should accept interchangeable lenses of either long or short focal length. The camera setup of either the Kodak Precision Enlarger A or B fulfills all of these requirements. They both have ground-glass focusing which will enable you both to frame and focus a picture more precisely; they are both of the interchangeable-lens type; and they can both be equipped with either a  $2\frac{1}{4}$  by  $3\frac{1}{4}$  Kodak Combination Film and Plate Holder for making large transparencies or with either a 35mm or Bantam Kodachrome Adapter for making slides. For those who want to use long-focal-length lenses with the camera setup for either the Kodak Precision Enlarger A or B, the maximum bellows draw of the Assembly A is  $6\frac{1}{4}$  inches, while that of the Assembly B is  $10\frac{3}{4}$  inches.

The Kodak Eye-Level Tripod with a Kodak Turn-Tilt Tripod Head is recommended for miniature cameras. The Cine-Kodak Tripod is better for heavier equipment such as the Precision Enlarger camera setup. For birds at high nests, you can use a high tripod of pipe legs or a Kodapod or a Kodak Optipod clamped on a branch.

The flash unit recommended is the Kodak Flashholder which was designed specifically for use with cameras equipped with Kodak flash shutters. Be sure to use batteries that are new and strong because weak batteries may cause poor synchronization or fail to flash the lamp. A flash battery should test at least five amperes.

## THE FILM

KODACHROME Film, Type A, is recommended for close-ups. It would seem at first glance that Kodachrome Film, Daylight Type, would be indicated since bird photography is done in daylight. But, being able to use small lens openings is an advantage in close-up photography, and the combination of Kodachrome Film, Type A, and untinted flash lamps permits the use of the smaller openings. Sunlight, contrary to what might be expected, plays little part in exposing the film, since the intensity of flash used close is much greater than sunlight.

For pictures of large birds or groups of birds in full sunlight when the flash lamp-to-subject distance would exceed 30 inches, expose by sunlight rather than flash, and use Kodachrome Film, Type A, with a Kodachrome Type A Filter for Daylight over your camera lens, or use Kodachrome Film, Daylight Type. Follow the exposure recommendations in the instruction sheet packed with the film or in the Snapshot Kodaguide. In other than sunlight, use a Photoflash Lamp No. 5B (blue-tinted) or equivalent (see the Flash Exposure Table).





Downy Woodpecker

## WHY FLASH?

THE light best suited to still-camera bird photography is photoflash. The SM Lamp, or an equivalent, is recommended when the lamp-to-subject distance is 30 inches or less. This lamp offers a number of advantages. Its flash is very short, producing an effect about the same as a 1/200-second shutter speed. A quick flash like this is desirable for active birds. With this lamp and Kodachrome Film, Type A, a small lens opening can be used in close-up pictures, and it is not necessary to use a filter over the camera lens, although a Kodak Wratten CC23

Filter can be used for slightly warmer results.

If your camera has a shutter with which you can take synchronized flash pictures at shutter speeds of 1/100 second and faster, you may want to use Photoflash Lamps No. 5 for your pictures on Kodachrome Film, Type A. If so, you must use a Kodak Wratten CC15 Filter over your camera lens.

One disadvantage in the use of flash close to the subject is that if a distant background is included in the picture, it will be reproduced dark and bluish. To avoid this effect, arrange your setup so that a background, preferably natural, is within a foot or two of the bird.

## USE OF SUNLIGHT

MOST cameras can take bird pictures in sunlight or bright daylight. It is sometimes possible to move branches aside to expose a nest to sunlight, or to direct sunlight into a shaded area with a reflector. Do not subject eggs or fledglings to sunlight for more than a few minutes.

## SETTING UP, FOCUSING, AND FRAMING

SET up your camera on a tripod near the nest, feeder, or bath and arrange an appropriate natural background. You usually will want the image of the bird to occupy as large an area of the picture as possible,

6 so choose from the Lens Data Table that appears on page 9 a dis-

The full-color still pictures of birds in this booklet were taken on Kodachrome Professional Film By Eliot Porter, M.D. Blue photoflash lamps provided the light. The camera shutter was set for 1/200 second and tripped by remote control. Birds in pictures showing equipment are museum specimens, but the black-and-white reproductions show live birds originally photographed on Kodachrome Film with the Kodak still cameras recommended. All four illustrations on page 15 are from amateur Kodachrome movies. From top to bottom, the pictures were made by Herbert J. Rinkel, M.D., Mr. Lenox R. Lohr, Mr. Frank E. Gunnell, and Mr. W. L. Wilcox, respectively.

Blue Jay



tance and (if necessary) a Portra Lens which will give a field of appropriate size for the bird concerned. A 13-inch distance with a miniature camera is needed for small birds, and a distance of 30 inches or more for big birds. For 13- or 20-inch distances, use a Kodak Portra Lens 3+ or 2+, measuring the distance from the lens rim.

When you use a Kodak Portra Lens, the lens-to-subject distance must be exactly as specified in the Lens Data Table. Things closer to and farther from the camera than the specified distance are rendered less sharp in focus. The catch in close-up pictures is that the range of sharp focus or depth of field is only a few inches. For instance, at 13 inches, the depth may be only from 11½ to 15 inches. Because the depth is so small, the camera-to-subject distance should always be measured; do this from the rim of the Portra Lens. Small lens openings give a greater depth than large ones. When you have a choice, use the smallest opening consistent with the shutter speed you need.

Now, how do you know when the bird is posed where focus is sharpest? At a nest or feeder the bird's activities are restricted. The nest restricts his position quite narrowly. The feeder can too if you arrange the food so that the bird will be attracted to the plane of sharp focus, and if the size of the feeder does not exceed the field of view.

## FRAMING AND AIMING

LOOKING through the view finder or at the ground glass of your camera, frame the exact area you want in the picture. If you have the usual miniature or roll-film camera, however, you are now faced with a problem: the difference in the viewpoints of the finder and camera lenses. This difference, known as parallax, is of no consequence in ordinary picture taking, but, in close-up view finding, allowance must be made for it. When the finder is above the camera lens, for instance, it sees an area which is above what the camera lens "sees." At the shortest distance concerned here, the top quarter of what you see in the finder may be cut off if you ignore this effect.

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Northern Parula Warbler



Yellow Warbler (male)



You can correct for parallax in several ways: Apply a small arrow of tape or ink along one side of the front element of the view finder and  $1/4$  of the height of this element down from its top edge. This mark is for a subject distance of 13 inches. To use the mark, look through the finder and pick out an object along the top edge of the framed area; now, tilt the camera up until this object is seen opposite the mark concerned; the camera lens now "sees" about what the finder did. Corresponding marks can be applied at  $1/6$  and  $1/8$  the height for subject distances of 20 and 30 inches, or their location can be estimated from the  $1/4$  mark.

### **ARRANGEMENTS FOR TRIPPING THE SHUTTER**

THERE are a number of ways to trip the shutter of your camera from a distance. The simplest method is to pull the shutter release with a string or cord. The most instantaneous method is the use of an electric tripping device. Pneumatic trippers are also suitable.

If you can pull the shutter release of your camera with a string, use a smooth fishing line or cord. (Directions for fastening the line to certain cameras are shown in the illustrations.) Keep the line on a reel and avoid running it around obstructions; friction makes the cord pull hard and delays the tripping action. To reduce the time lag, it is also better to pull the cord taut so that the shutter is almost ready to trip. Then a slight pressure on your end of the cord will give instant results at the camera end. Weight the tripod legs so you cannot pull the tripod over. Another hazard to consider is damaging the camera shutter by pulling the string too hard.

As a battery-operated electric shutter-tripping device, you can use one of the solenoid-type coils which can be ordered at most camera shops. Electric trippers are convenient to use at any distance, and respond instantaneously. Coils are made in different models to suit different shutters. Voltage falls off in a long wire, so if your tripper won't work, use heavier wire, a "hot-shot" battery, or a relay arrangement.

### **TAKING THE PICTURES**

AFTER focusing and aiming the camera as accurately as you can, test your shutter-releasing arrangement, and set the lens and shutter according to the Flash Exposure Table. You can now settle down for a nice long wait. There are some things you can do, however, which will make that wait shorter.

Even if birds have been visiting a bath, feeder, or nest regularly, the appearance on the scene of that ominous object, your camera, will



scarcely encourage normal, confident behavior. Tying down loose parts of your equipment such as cords, etc., so they won't move in the breeze will help some.

A feeder is not always an easy place to get pictures. It is good when the natural food supply is covered with snow and ice and the birds are hungry. It is poor if the ground is bare or if there is another feeder near-by. If you set up at one feeder, cover all others.

It is easier to begin bird photography by taking pictures of brave birds than of shy ones. A bird that recovers confidence fast is the chickadee. These birds, although quick as a wink, make nearly ideal subjects for your first pictures. If you are making a nest picture be sure you and your equipment don't so frighten the parent birds that they desert the fledglings or eggs.

When you operate the camera, the shutter click may frighten the birds away. They will usually come right back, however, so use their absence to change bulbs, cock the shutter, and advance the film.

**Lens Data Table**

LENS-TO-SUBJECT DISTANCE	FOCUS LENS AT	KODAK PORTRA LENS	DEPTH OF FIELD IN INCHES	FIELD SIZE	
				KODAK BANTAM CAMERA	KODAK 35 CAMERA
30 inches	2½ feet	None needed for Bantam Camera	24 to 40	16 x 24	14 x 21
	10 feet	1+			
20 inches	Infinity	2+	17 to 24	11 x 16	9 x 14
13 inches	Infinity	3+	11½ to 15	7 x 10	6 x 9

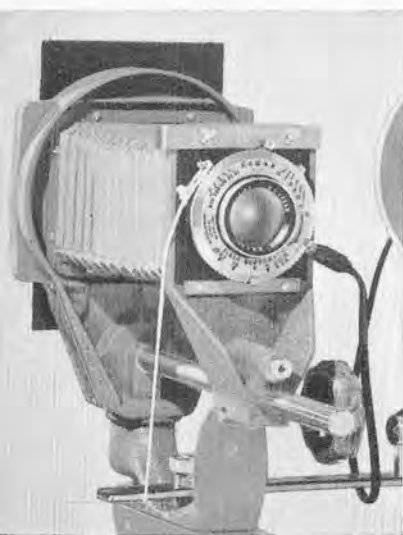
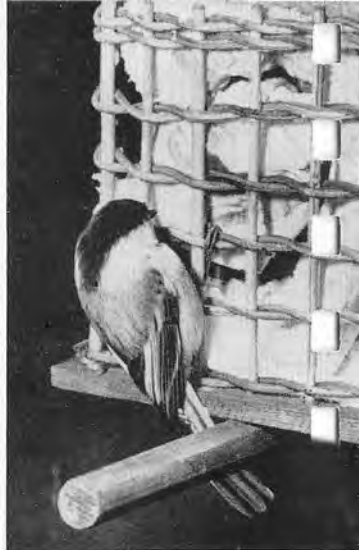
**Flash Exposure\* Table For Kodachrome Film**

Based on the use of the Kodak Flashholder or some other 4- or 5-inch, satin-finish reflector

Kodachrome Film, Type A					
FLASH LAMP	FILTER	SHUTTER TIME	LAMP-TO-SUBJECT DISTANCE		
			13"	20"	30"
SM No. 5 No. 6	—	1/25	<i>f/22**</i>	<i>f/16</i>	<i>f/11-16</i>
	CC15	1/100	<i>f/22**</i>	<i>f/16</i>	<i>f/11-16</i>
	CC15	1/200	<i>f/11-16</i>	<i>f/8-11</i>	<i>f/8</i>
Kodachrome Film, Daylight Type or Kodachrome Film, Type A, with Kodachrome Type A Filter for Daylight					
FLASH LAMP	SHUTTER TIME	LAMP-TO-SUBJECT DISTANCE			
		36"	48"	60"	
No. 5B	1/100	<i>f/8</i>	<i>f/6.3</i>	<i>f/5.6</i>	

\*These values are intended only as guides. They must be changed to suit individual variations in synchronization, battery, reflector, bulb position in the reflector, and subject type. For birds predominantly brown or black, use a half-stop larger lens opening, e.g., f/11-16 instead of f/16.

\*\*Or f/16 with one thickness of white handkerchief tied over reflector.



## HOW TO SET UP THE KODAK PRECISION ENLARGER FOR BIRD PICTURES

THE large picture shows the Kodak Precision Enlarger A set up as a camera at a feeder. You need the following equipment for a similar setup:

Kodak Precision Enlarger Bellows Assembly A or B

Camera Back Adapter A

Bantam Kodachrome Adapter A or B

Tripod Adapter

Kodak Ektar Lens, 101mm  $f/4.5$ , in Kodak Flash Supermatic Shutter, in Kodak Precision Enlarger Lens Board

Kodak Ektar Lens, 127mm  $f/4.7$ , in Kodak Flash Supermatic Shutter, in Kodak Precision Enlarger Lens Board

Kodak Flashholder with Standard Bracket

Cine-Kodak Tripod.

Smooth fishline, or a solenoid-coil shutter release and associated equipment

Place the camera 20 or 30 inches from the subject. At shorter distances, the area covered by the lens is too small to be useful in bird photography. Compose and focus picture on the ground glass.

The top close-up shows how to release the shutter with a cord; the lower shows a Heiland Electromatic Coil, Model K, in the cable-release socket of a Kodak Flash Supermatic Shutter.

The chickadee (upper right) was photographed with the equipment in the adjacent picture.



## HOW TO SET UP THE KODAK FLASH BANTAM CAMERA FOR BIRD PICTURES

THE pictures show the Kodak Flash Bantam Camera set up at a feeder. For a similar setup, you need the following equipment:

- Kodak Flash Bantam Camera,  $f/4.5$
- Kodak Flashholder with Standard Bracket
- Kodak Eye-Level Tripod
- Kodak Turn-Tilt Tripod Head
- A smooth fishline
- Kodak Portra Lenses 2+ and 3+

Set up the camera so that the distance from the rim of the Portra Lens to the bird is exactly equal to one of the Lens-to-Subject Distances specified in the Lens Data Table (see page 9). Aim the camera with the view finder, allowing for parallax as directed in the text, or compose the picture on an improvised ground glass. To do this, open the camera back and the shutter. Hold a small piece of ground glass, ground side toward the lens, tight against the frame over which the film passes. What you see on the ground glass is about what you will get in the picture. Finely ground glass can be obtained from some photographic dealers and cut to size. Close the shutter before loading the camera.

The close-up shows where the cord should be attached to the shutter release bar, the loop slipping over the bar under the exposure release button.

The birds, top to bottom, are a tree sparrow, a pheasant, and young loggerhead shrikes.



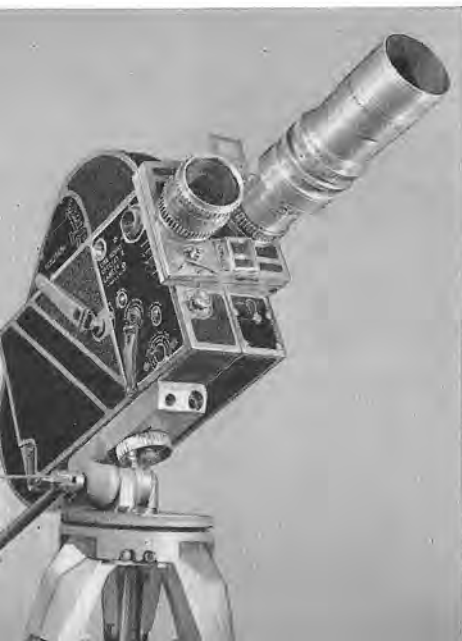
## BIRD MOVIES

MOTION is an inherent characteristic of bird life. Except when on the nest, birds are nearly always in motion — in graceful and interesting action. When they are in flight, building nests, or feeding their young, they are much more interesting than when still. Motion pictures are their natural photographic medium; a movie of a bird in flight is both exciting to take and fascinating to watch.

Movies, compared with still pictures, are not only better suited to bird life, but in this case are easier to take. A moving object is simpler to photograph with a movie camera. Also, most movie cameras can accept interchangeable lenses of long focal length which give large images of relatively distant birds; for instance, an area  $2 \times 2\frac{1}{2}$  feet can be photographed 40 feet away. Finally, movie lenses, even long-focus ones, have the large apertures needed for taking pictures in the shady locations so many birds prefer.

The chief problems are those connected with focusing and view-finding. You will need to acquire skill in estimating distance accurately enough for long-focus lenses. Although measuring the distance is best when making movies at some nests or feeders, when making pictures in other locations it is frequently impossible to measure, and there is often no time to use a range finder even if one is available. Another skill that is required is rapid allowance in the finder for parallax which was described in connection with miniature-camera view finding. The instruction manuals packed with Cine-Kodak cameras and lenses include field-size and parallax tables.

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At left: A Cine-Kodak Special II Camera with regular and long-focal-length lenses on the lens turret. Below: A Cine-Kodak Magazine 16 Camera equipped with a Kodak Cine Ektar Lens, 102mm f/2.7, and mounted on a Cine-Kodak Tripod.





## EQUIPMENT

WHILE it is possible to photograph some of the larger species of birds, particularly if they are tame, with a movie camera equipped with its usual lens, for filming smaller, more timid birds, you will need an interchangeable-lens type of camera which can be fitted with long-focal-length lenses. It is better, too, if the camera is of the magazine-loading type or one using a long roll of film and having a long run per wind, because in the time required for rethreading or rewinding a camera a scene may be irreplaceably lost.

The Cine-Kodak Magazine 16 Camera and the Cine-Kodak Magazine 8 Camera are both convenient for general bird photography, but for pictures of the finest quality many photographers use a Cine-Kodak Special Camera. This camera has a lens turret for changing quickly from one focal-length lens to another, takes 100- or 200-foot Film Chambers which can be changed rapidly, will run nearly 40 feet per winding, and has a built-in reflex focusing finder which enables you to frame and focus your pictures quickly and accurately. Taking speeds from 8 to 64 frames per second are provided.

## LENSES

For both the Cine-Kodak Magazine and Cine-Kodak Special Cameras there is available a complete line of lenses of varying focal lengths. Of these, the Kodak Cine Ektar Lens, 102mm  $f/2.7$ , is probably the most useful for a 16mm camera (or a 50mm lens for an 8mm camera). Also available are a Kodak Cine Ektar Lens, 152mm  $f/4.0$  (or a 63mm lens for an 8mm camera), for still greater magnification, and lenses shorter in focal length than 102mm or its equivalent for situations requiring them.

While a camera with interchangeable lenses makes the best bird movies, there is a possibility of using a camera without this feature if you are clever at optical improvising. A 6-power binocular can be added to the camera in such a way that one half serves the camera lens and the other serves as a finder. The effective lens opening is governed by the actual diameter of the small disk of light which is formed just behind the eyepiece. This disk, for a 6-30 binocular, is 5mm in diameter. This means that used with a 25mm lens, the largest available lens opening is  $f/5.0$ , and used with a 13mm lens, the largest opening is  $f/2.5$ . Details can be found in the articles cited in the bibliography.

Unless a movie camera equipped with a long-focus lens is held very steady, the pictures on the screen will be "jumpy." It is therefore impractical to hold the camera free-hand, and a sturdy tripod should be

used. When birds are in action or in flight, however, a tripod interferes with the type of "follow" shot that shows them best. The most practical camera support for such situations is the gunstock mount. You can improvise one, possibly from a surplus army wooden drill rifle. Add a vertical handle for whichever hand does not operate the camera. Mount the camera at an angle to the gunstock so that it will photograph straight ahead when the mount is swung to bring it in front of your face. The horizontal distance from the shoulder pad to the camera finder should be about 6 inches if the camera is parallel to the stock, 8 inches if set at an angle as suggested above.

In a high wind, you should give the camera additional support by steadying it against something firm, by shooting from a prone position, or by resorting to a tripod.

### **TAKING THE PICTURES**

MAKE your bird movies into a story whenever possible. Include some general scenes showing the season, the location, and what the country is like. When appropriate, take pictures of the car and the equipment, and show who went along and what they did.

An automobile can often be used as a blind for birds that live near roads because these birds are accustomed to passing cars. Have the camera all set, stop the car gently, turn off the motor, and make all movements slowly and quietly. Shoot through an open car window.

Large birds in flight must be taken at no less than 24 frames per second; otherwise the birds in the pictures will appear to be flying with an unnatural flip-flop motion. Don't panoram except to follow the direction of the bird's flight.

The Cine-Kodak Magazine 16 Camera on a homemade gunstock, attached by means of a Tripod and Titler Base designed to permit this camera to be opened when mounted. The mount is notched to allow access to the tripod screw. This base is not necessary with the Cine-Kodak Magazine 8 Camera. A  $\frac{1}{4}$ -20 bolt will engage any American tripod socket.



Birds must be photographed where you find them and by whatever light conditions prevail. When direct sunlight can be used, it is desirable not only for its modeling, texture, and otherwise pleasing rendering, but perhaps more important, it requires smaller lens openings than other conditions and therefore the depth of field is greater. This means that while your estimation of distance must be quite accurate even for direct sunlight, it must be even more accurate for other lighting conditions.

Front lighting is usually desirable, that is, the sun should be somewhere behind you. Occasionally, the situation may permit you to use one or more mirrors to throw light into shaded areas. The exposure for a reflected beam is almost the same as for direct sunlight.

For exposure settings, follow the Movie Kodaguide or the instructions that come with the film. Regard predominantly white birds as light-colored subjects, brightly colored birds as average subjects, and brown or darker colored birds as dark subjects. For daylight conditions not accurately identifiable in these instructions, use an exposure meter, but be careful that the reading will apply where the bird is.



## A SELECTED LIST OF REFERENCES

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### Guides to Bird Watching

#### A FIELD GUIDE TO THE BIRDS

Roger T. Peterson, Houghton Mifflin Co., Boston, Mass., 1947, 290 pp.  
Backbone of the bird-watcher's library, this book describes field marks, voice, and range of birds found from the Dakotas and East Texas to the Atlantic Coast.

#### A FIELD GUIDE TO WESTERN BIRDS

Roger T. Peterson, Houghton Mifflin Co., Boston, Mass., 1941, 240 pp.  
Similar to the above, this book describes birds of Oregon, California, Nevada, Idaho, Utah, Washington, Montana, Wyoming, Colorado, Arizona, New Mexico, and West Texas.

#### A GUIDE TO BIRD WATCHING

Joseph J. Hickey, Oxford Univ. Press, New York, Toronto, 1943, 262 pp.  
This book goes beyond mere bird recognition to point the road to a lifetime interest in bird study. It features an annotated list of bird books.

### References to Bird Photography

#### NATURE PHOTOGRAPHY

Roger T. Peterson, National Audubon Society, 1000 Fifth Ave., New York City, 1940, Circular No. 4, for sale at 10 cents by the publisher. 16 pp.

This pamphlet covers the basic techniques of nature photography. Pertinent are the sections on cameras, flash photography, flight pictures, ducks and shore birds, nests and young birds, and blinds.

#### THE BOOK OF BIRD LIFE

Arthur A. Allen, D. Van Nostrand Co., New York, 1930, 426 pp.

Chapter 16 of this book by one of America's best bird photographers contains a sound discussion of observation blinds and of bird photography with black-and-white film.

#### NATURE AND CAMERA

Oliver G. Pike, The Focal Press, London and New York, 1943, 262 pp.  
Methods for photographing natural subjects are described. Although few of the bird species discussed are native to North America, the methods are universal. Chapters on nest and flight photography deal primarily with black-and-white negative materials.

#### BIRD FILMS NEED PATIENCE

Edgar R. Hoff, *Movie Makers*, 18:332, September, 1943.

Here is an article dealing solely with bird movies which discusses sequence, selection, and use of lenses for telephoto effects, length of scenes, exposure, and getting into position to photograph birds.

#### TELEPHOTO MOTION PICTURES THROUGH BINOCULARS

John H. McLeod, *The Camera*, 47:301, November, 1933.

#### FURTHER NOTES ON TELEPHOTO MOTION PICTURES THROUGH BINOCULARS

John H. McLeod, *The Camera*, 48:327, May, 1934.

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