Fact table

COLUMN NAME	DATA TYPE	CONSTRAINT	COMMENTS
Surrogate key			
anuran_fact_pk	INT		
Grain			We could conceivably use the grain columns as the primary key, to avoid duplicate observiations. Would make sense to prevent duplication. However, the observer key is likely to be unknown. Therefore, we best use the surrogate.
local_datetime	TIMESTAMP	NOT NULL	
site_fk	INT	NOT NULL	label, watershed, etc.
observer_fk	INT	NOT NULL	If registered. Main interest is with indicators that get at the reliability of the observations.
anuran_species_fk	INT	NOT NULL	Realtes to the “Family,” “Genus,” and “Species”
Fact			
anuran_calling_code	INT	NOT NULL	Specific to Frogs and Toads (hence, auruan). Non-additive, yes, but there's no other practical way to measure
Dimensions			
date_fk	INT	NOT NULL	Derived from timestamp. Used for reporting and aggregation.
hour_fk	INT	NOT NULL	derived from timestamp; used for aggregation.
geographic_adminstrative_level_fk	INT	NULL	country, state/province, county, etc
observed_site_condition_fk	INT	NULL	condition of site per observer. This will be a type 4 mini dimensions
weather_station_nearest_fk	INT	NULL	ID of nearest weather station, from which the “official" weather measurements are obtained. Note that this likely is specific to the US.
weather_station_temperature_in_celsius	INT	NULL	per the weather station
weather_station_precipitation_in_cm	NUMERIC(4,1)	NULL	
weather_station_wind_speed_in_kph	NUMERIC(4,1)	NULL	
weather_station_relative_humidty_percent		NULL	
weather_station_barometric_pressure	numeric(5,1)	NULL	
extraordinary_weather_event_fk	INT	NULL	e.g., hurricane, lightning
extraordinary_astronomical_event_fk	INT	NULL	e.g., eclipse
after_sunset_indicator	BOOLEAN	NULL	computed during the ETL. false if after sunrise is true.
after_sunrise_indicator	BOOLEAN	NULL	computed during the ETL. false if afer sunet is true
noise_level_fk	INT	NULL	
construction_indicator	BOOLEAN		disturbs habitat
Links to raw source data			
habitat_description_record_id	INT	NULL	Link to a text record
comments_record_id	INT	NULL	
sound_recording_record_id	INT	NULL	Link to a record that either contains the recording, or a file name.
source_observation_document_id	VARCHAR(24)	NOT NULL	

Calling Code (type 2 SCD)

Code	Description	SQL
1	Individuals can be counted; there is space between calls.	(1,'Individuals can be counted; there is space between calls.'),
2	Calls of individuals can be distinguished, but there are some overlapping calls.	(2,'Calls of individuals can be distinguished, but there are some overlapping calls.'),
3	Full chorus, calls are constant, continuous and overlapping.	(3,'Full chorus, calls are constant, continuous and overlapping.'),

Land Use (type 2 SCD).

Code	Description	SQL
0	Not recorded or unknown	(0,'Not recorded or unknown'),
1	Urban Open Space	(1,'Urban Open Space'),
2	Urban Forest	(2,'Urban Forest'),
3	Private Backyard	(3,'Private Backyard'),
4	Nature Park	(4,'Nature Park'),
5	Rural	(5,'Rural'),

Right now, the land use code is wrapped into the site dimension table. That might have to change and pull it out as a separate dim table. The alternative is to change the “site” dim from a type 2 to type 3.

Current Conditions (type 2 SCD)

Code	Description	SQL
0	Not recorded	(0,'Not recorded'),
1	Sunny and clean	(1,'Sunny and clean'),
2	Partly cloudy or variable sky	(2,'Partly cloudy or variable sky'),
3	Overcast	(3,'Overcast'),
4	Fog or smoke	(4,'Fog or smoke'),
5	Drizzle / light rain	(5,'Drizzle / light rain'),

Wind Scale (type 2 SCD)

Code	Description	SQL
0	Not recorded or observed	(0,'Not recorded or observed'),
1	Calm	(1,'Calm'),
2	Light Breeze	(2,'Light Breeze'),
3	Gentle Breeze	(3,'Gentle Breeze'),
4	Moderate Breeze	(4,'Moderate Breeze'),
5	Fresh Breeze	(5,'Fresh Breeze'),

The “observed site condition” dim is type 4 mini dimension, consisting of all possible combinations of four attributes:

* Current Conditions
* Wind Scale
* Rain in the Last 48 hours
* Water Level

Organized this way to aid analysis.

Rain in the last 48 hours (type 2 SCD)

Code	Description	SQL
0	None	(0,'None'),
1	Light (less than 1/2 inch)	(1,'Light (less than 1/2 inch)'),
2	Moderate (1/2 - 1 inch)	(2,'Moderate (1/2 - 1 inch)'),
3	Heavy (< 1 inch)	(3,'Heavy (< 1 inch)'),

Water Level (type 2 SCD)

Code	Description	SQL
0	Not observed or unobservable	(0,'Not observed or unobservable'),
1	Extremely dry - drought conditions	(1,'Extremely dry - drought conditions'),
2	Moist, but no standing water	(2,'Moist, but no standing water'),
3	Shallow water (less than 1 foot)	(3,'Shallow water (less than 1 foot)'),
4	Deep water (more than 1 foot)	(4,'Deep water (more than 1 foot)'),
5	Permanent Water	(5,'Permanent Water'),

Noise Level (type 2 SCD)

Code	Description	SQL
0	Not recorded or observed	(0,'Not recorded or observed'),
1	No effect (owl calling)	(1,'No effect (owl calling)'),
2	Slight effect (distant traffic, dog barking)	(2,'Slight effect (distant traffic, dog barking)'),
3	Moderate effect (nearby traffic, 2-5 cars passing)	(3,'Moderate effect (nearby traffic, 2-5 cars passing)'),
4	Serious effect (continuous traffic nearby, 6-10 cars passing)	(4,'Serious effect (continuous traffic nearby, 6-10 cars passing)'),
5	Profound effect (continuous traffic passing, construction noise)	(5,'Profound effect (continuous traffic passing, construction noise)'),